

SERVICE MANUAL

COMPACT DISC
STEREO SYSTEM

BASIC TAPE MECHANISM : 2ZM-1 R9NM
BASIC CD MECHANISM : ZZG-4 YB

- This Service Manual contains the additional information "CD MECHANISM DISASSEMBLY INSTRUCTIONS" and "CD TEST MODE" for the model XR-M700 (K).

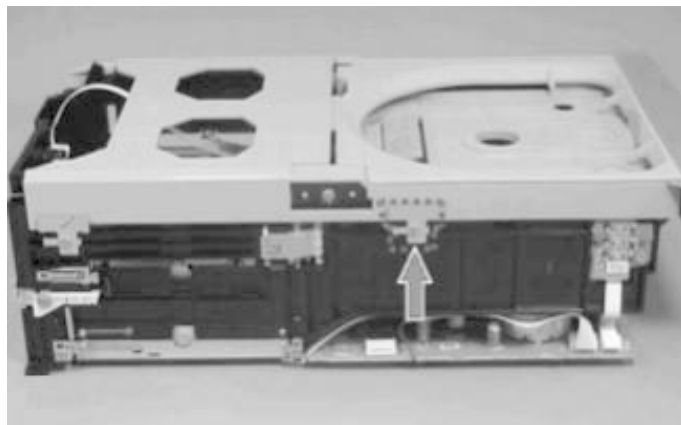
If requiring the other information, see Service Manual of XR-M700 (K), (S/M Code No. 09-006-430-8R1).

CD MECHANISM DISASSEMBLY INSTRUCTIONS

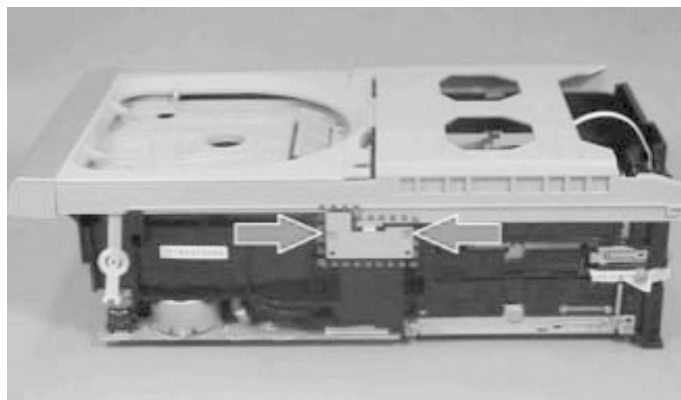
1. Procedure of Disassembling the ZZG-4 Mechanism

1-1. Removing the FRAME, MAIN

- 1) Remove a screw and PLATE, FRAME L.



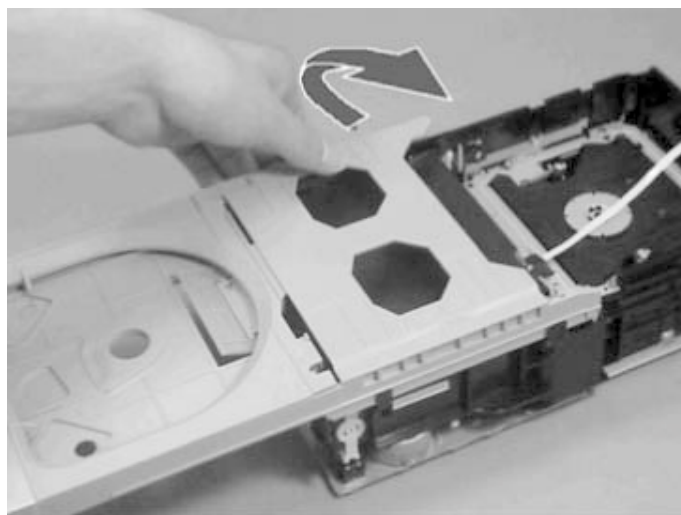
- 2) Remove the 2 screws and PLATE, FRAME R.



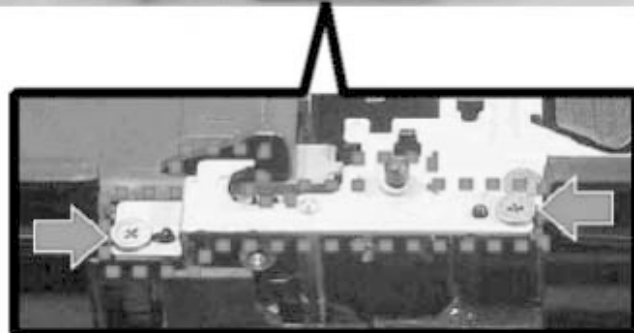
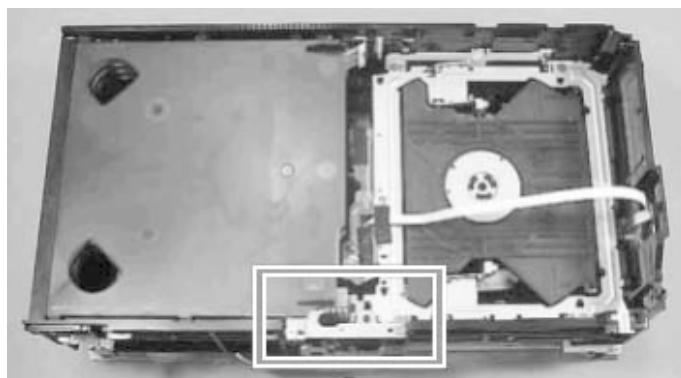
- 3) Pull up ① LEVER, LOCK F, and pull out ② FRAME, MAIN toward the front. Turn the GEAR, SLIDER B and adjust the ELEVATOR to any position except TOP.



- 4) Remove the FRAME, MAIN on the L side first. Then lift up toward the direction of the arrow and remove the FRAME, MAIN from the BASE.



- 1-2. Removing the GEAR, TRAY AB
- 1) Remove the 2 screws and HLDR, SHAFT.

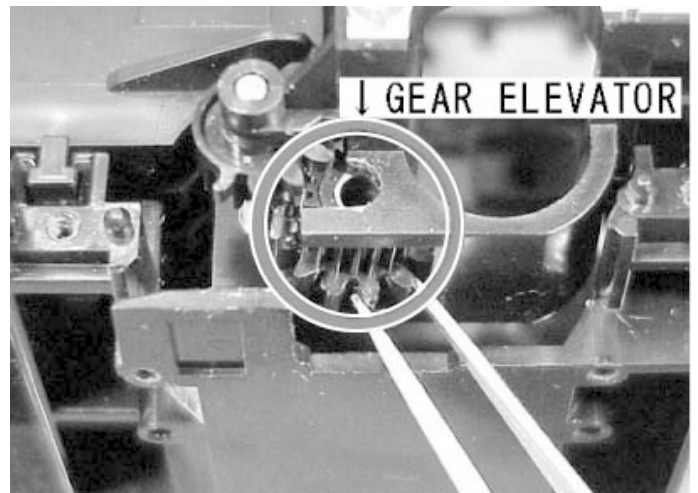


- 2) Turn the GEAR, SLIDER B and shift the ELEVATOR to the TOP position.
- 3) Pull out the GEAR, TRAY AB and SHAFT, ELEVATOR.



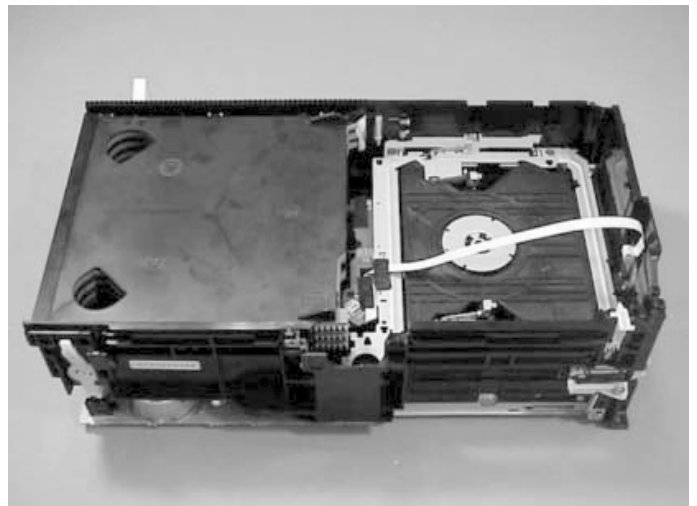
1-3. Removing the GEAR, ELEVATOR

- 1) Remove the GEAR, ELEVATOR.

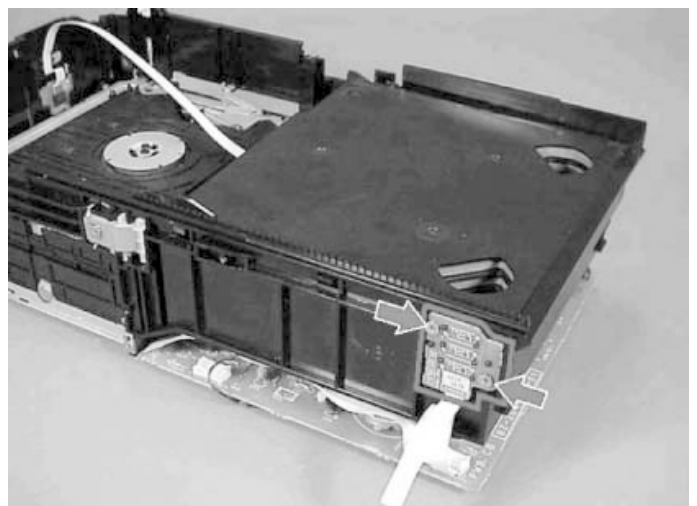


1-4. Removing the CD MAGAZINE Part

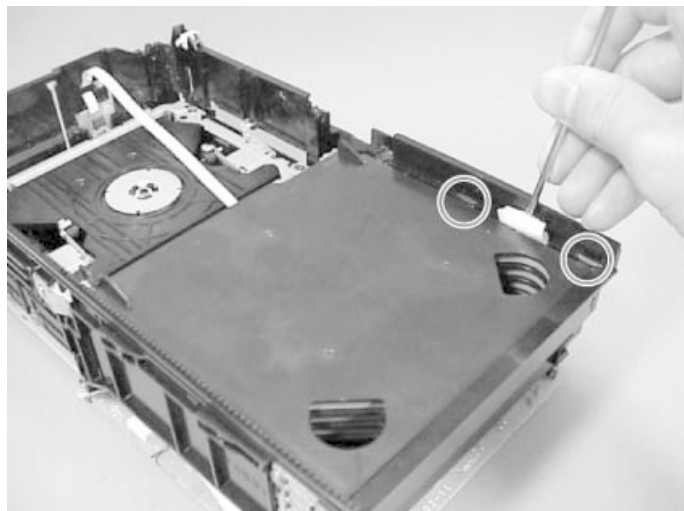
- 1) Remove the GEAR, TRAY A and B, etc. to make it look like in the photo.



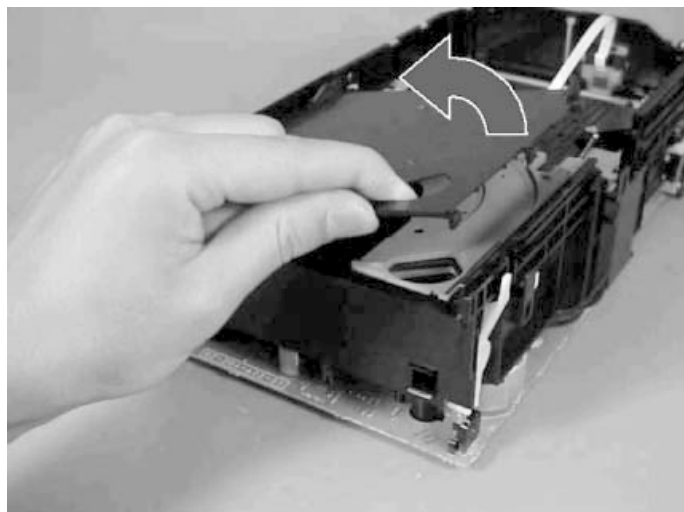
- 2) Remove the 2 screws and PWB, TRAY.



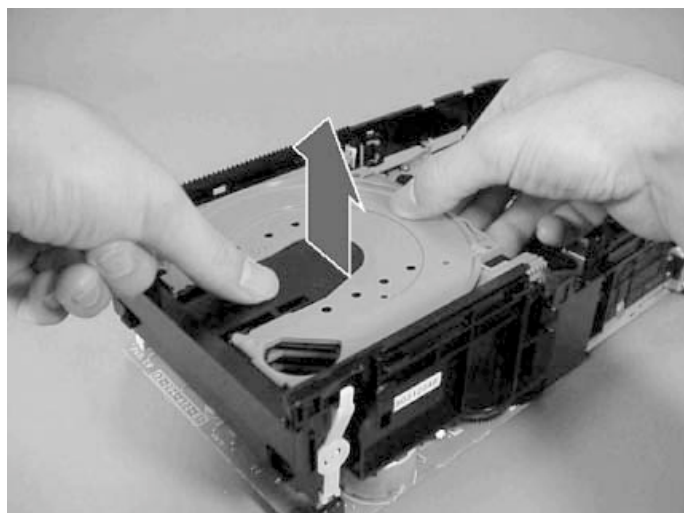
- 3) Remove the claws indicated by the circles in order to remove the MAGAZINE, TOP. Insert a minus driver into the gap and remove the MAGAZINE, TOP by lifting it upward.



- 4) Remove the MAGAZINE, TOP.

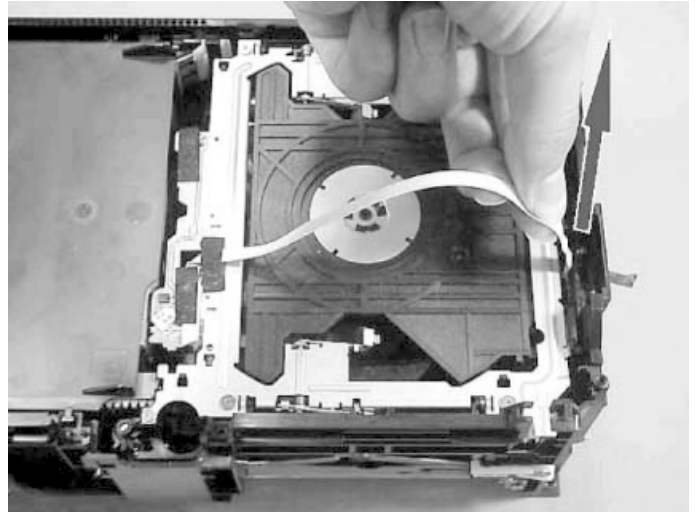


- 5) Remove the TRAY 1,2,3 and 3 pieces of MAGAZINE by lifting them up.

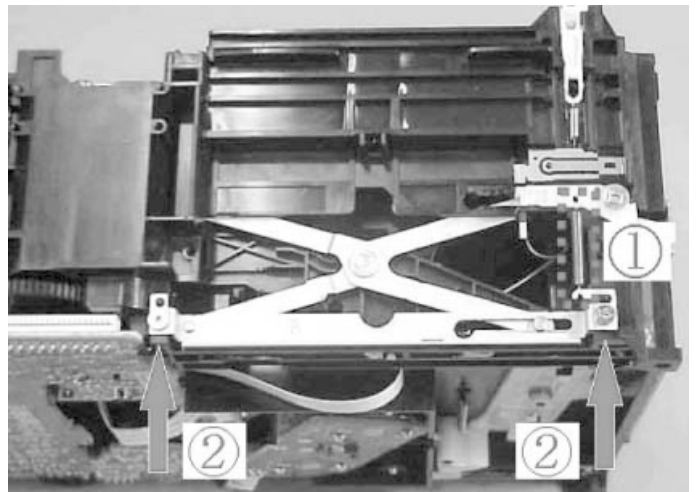


1-5. Removing the ELEVATOR Part

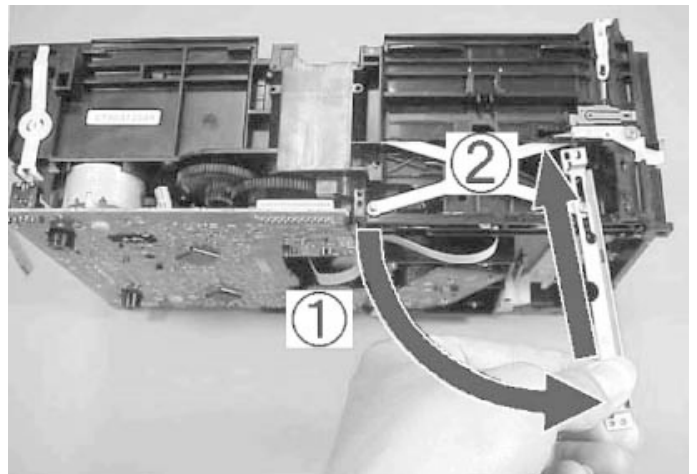
- 1) Remove the FFC, 4P of the switch circuit board from the BASE rib, and disconnect it from the connector.



- 2) ① Remove the spring (88-ZG5-292-010).
② Remove the 2 screws.

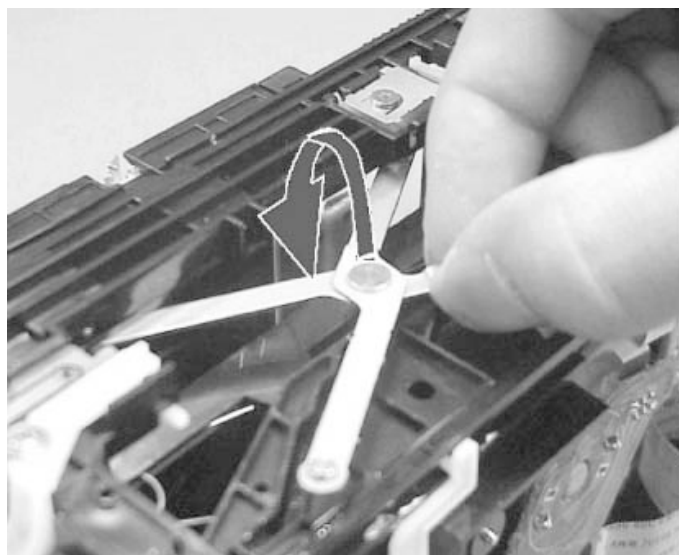


- 3) ① Remove the front side of the HLDR, LINK R from the boss, rotate it as shown in the photo.
② Shift the HLDR, LINK R toward the direction of the arrow as shown in the photo and remove it.

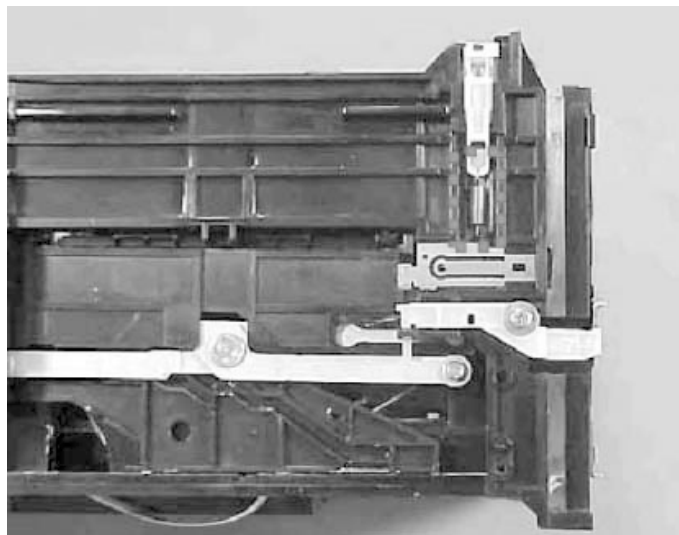


- 4) Remove the HLDR, LINK L in the same step as R.

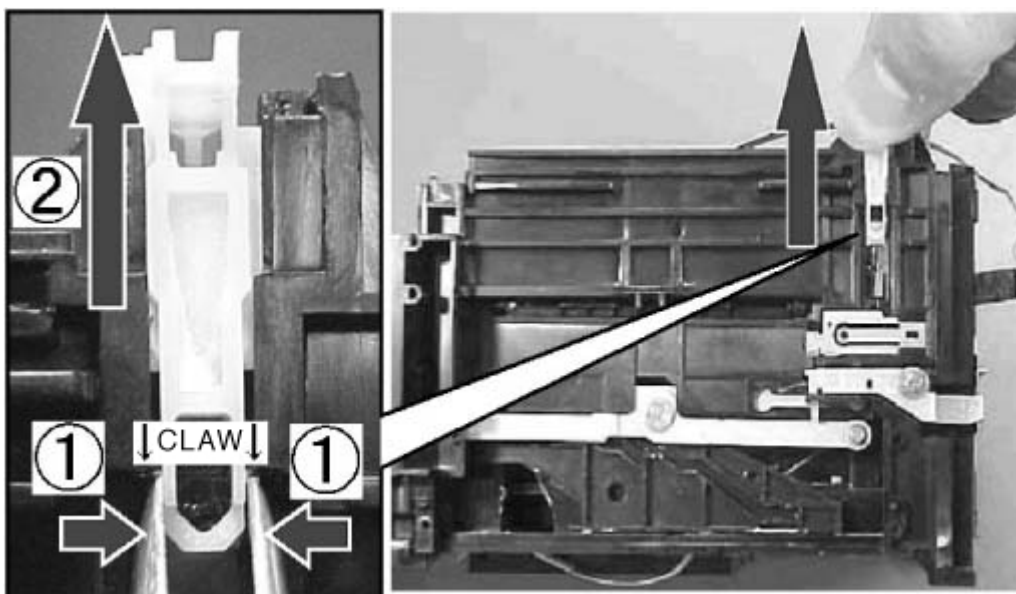
- 5) Remove the boss of the LEVER, ASSY LINK from the groove of the LEVER SLIDE (both L and R sides).



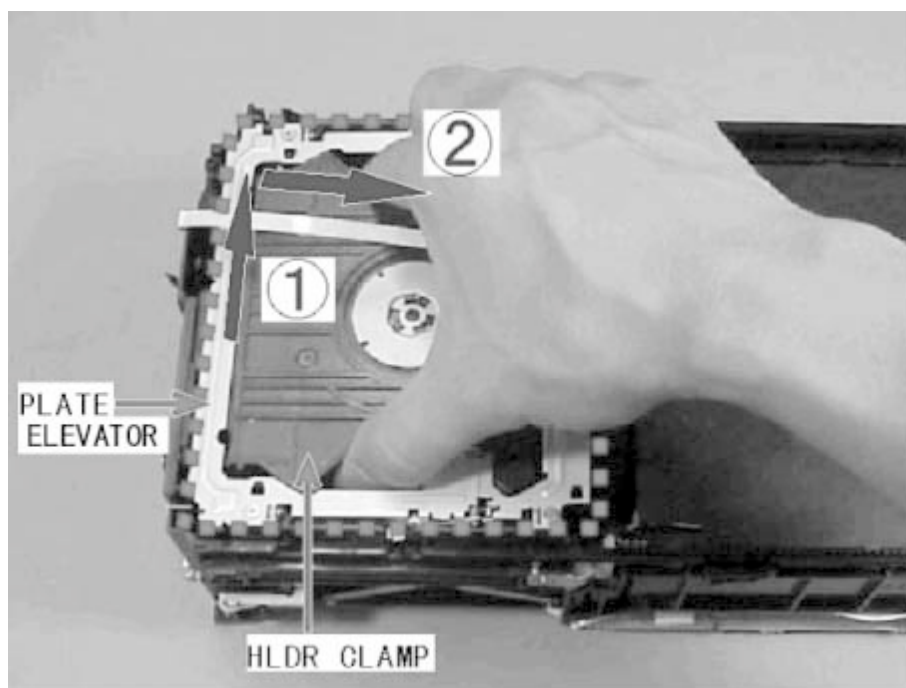
- 6) Remove the spring (88-ZG5-225-010).



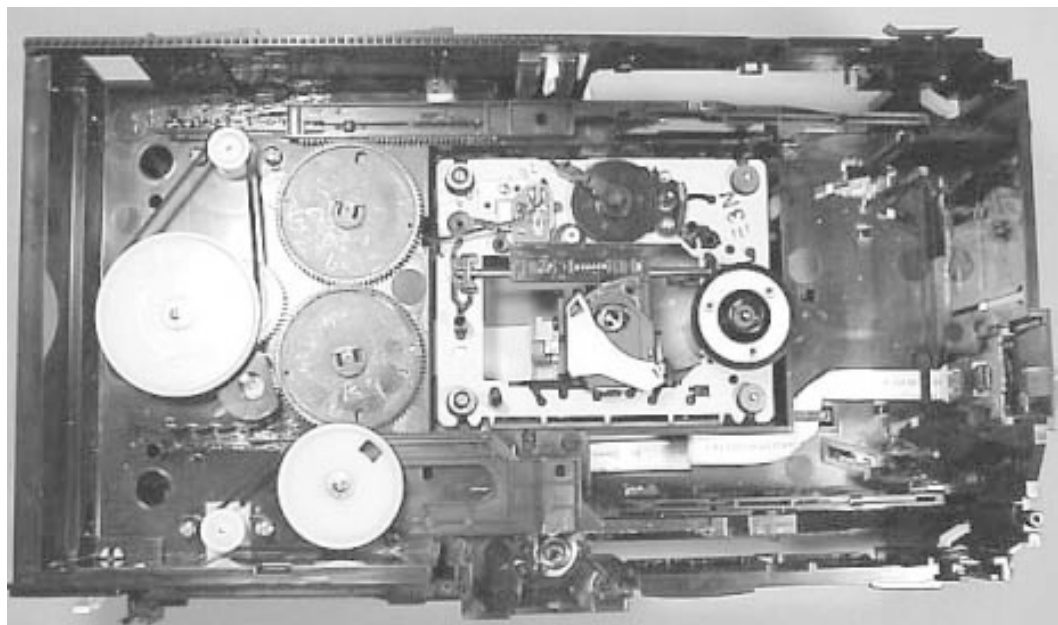
- 7) ① Use a pair of tweezers to remove the claw below the ② LEVER, LOCK F. Then pull out the LEVER LOCK F.



- 8) ① Lift up the PLATE, ELEVATOR, together with the HLDR, CLAMP.
② Once lift it up to the TOP position, pull it toward the front side. Then remove the PLATE, ELEVATOR and HLDR, CLAMP.



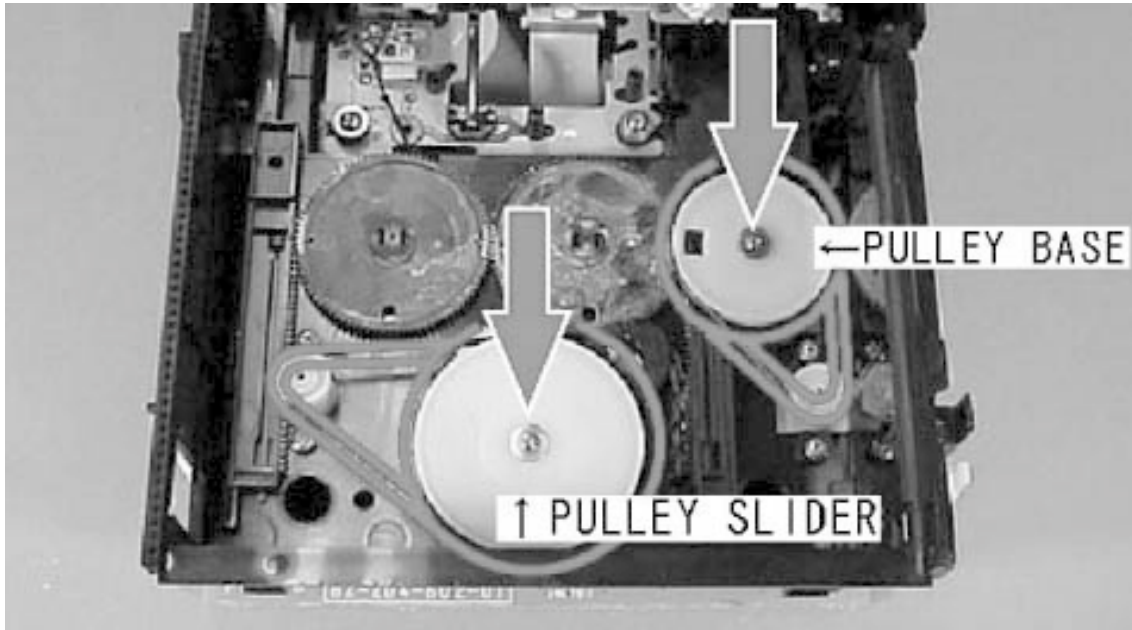
- 9) Views after removing the ELEVATOR part and MAGAZINE part.



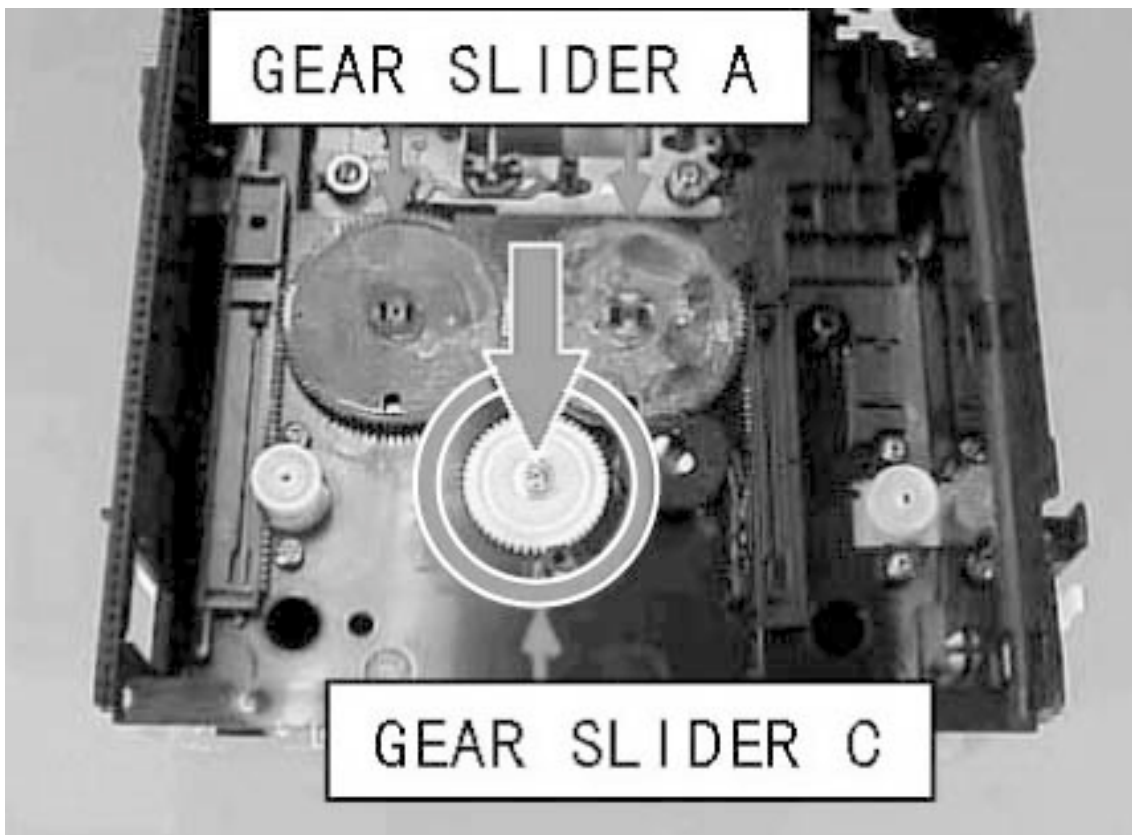
* At this stage, the mechanism's pick-up can be changed. Refer to "5. Procedure of Replacing the Pick-up" for details.

1-6. Removing the ELEVATOR UP/DOWN Components.

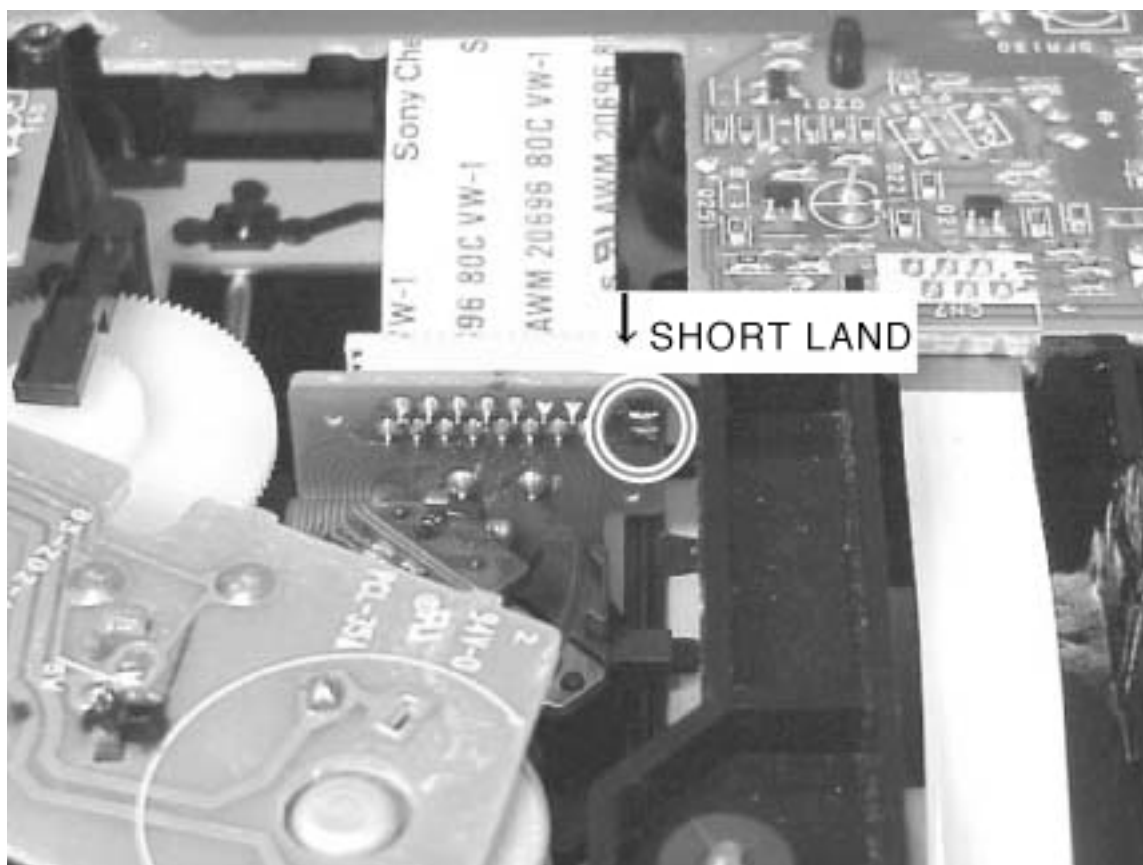
- 1) Remove the BELT, SLIDER and BELT, BASE. Then remove the 2 screws, the PULLEY, SLIDER and PULLEY, BASE.



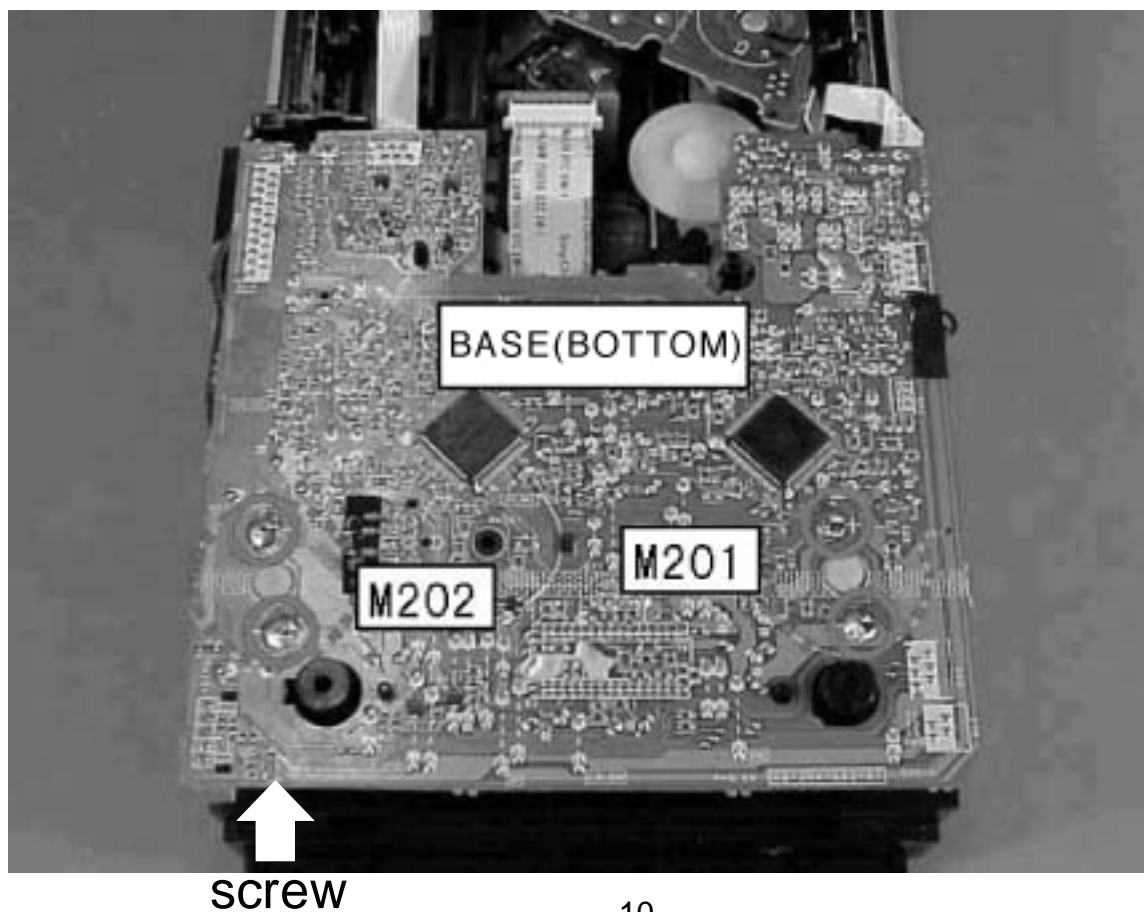
- 2) Remove the screw and GEAR, SLIDER C.



3) Turn over the CD mechanism and short-circuit the shortland of the pick-up.

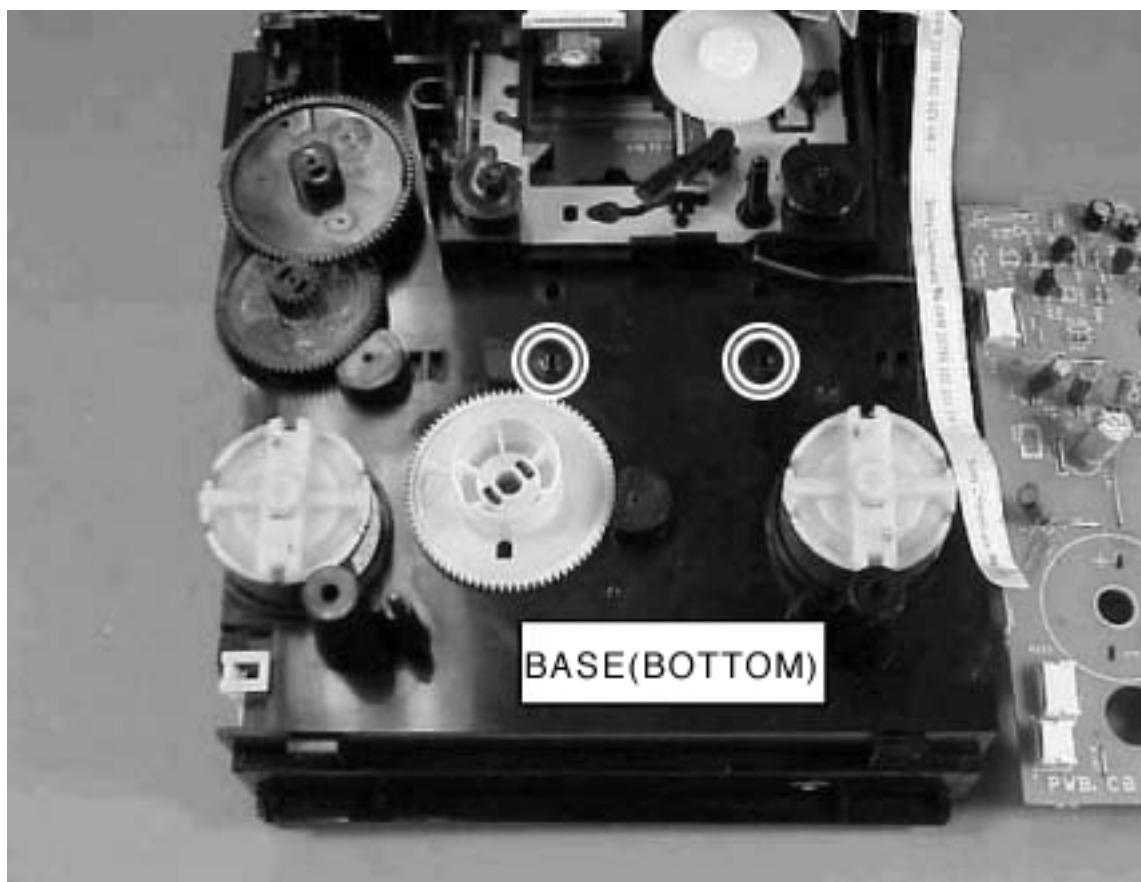


4) Desolder M201 and M202. And remove the screw.
Disconnect FFC (3 parts) and remove the CD C.B from the BASE.



5) Views after removing the CD C.B.

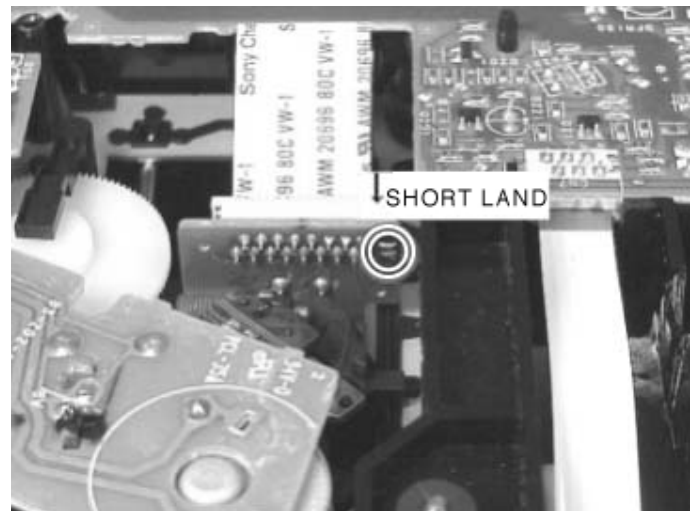
Once the claws (indicated by the circles) are pressed, 2 of the GEAR, SLIDER A will come off.



2. Procedure of Replacing the Pick-up

2-1. Removing the Pick-up

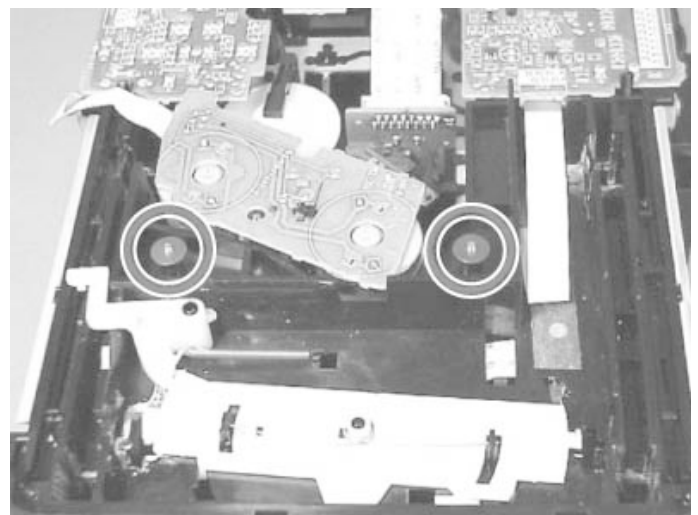
- 1) Turn over the CD mechanism and short-circuit the shotland (indicated by the circle) at the pick-up.



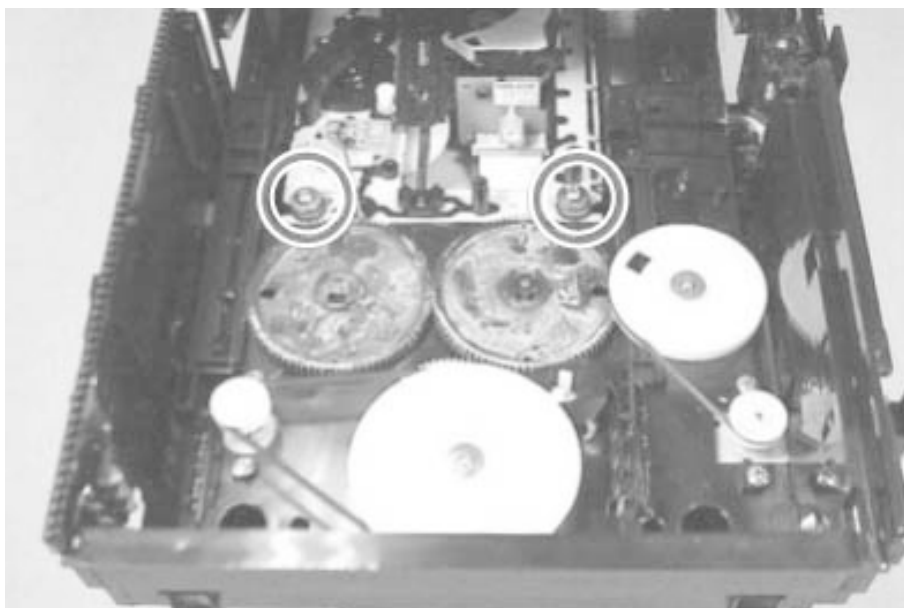
- 2) Disconnect the FFC, 16P and FFC, 6P.



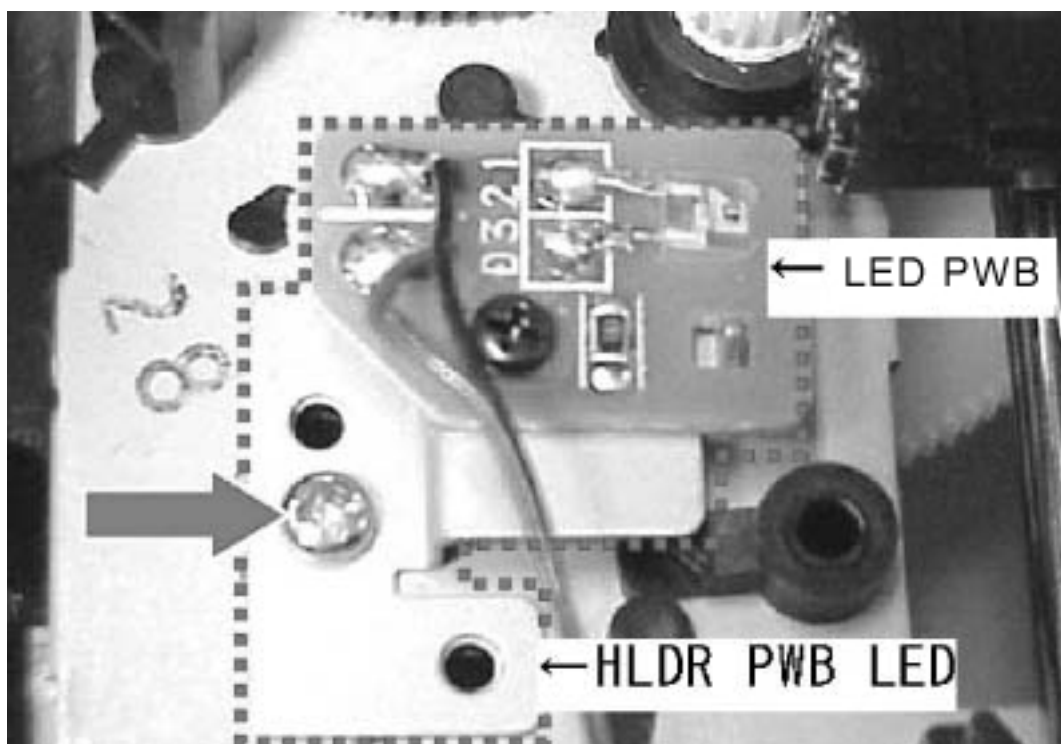
- 3) Remove the 2 pieces of the Washer W-P, 2.08-8-0.5 (87-B10-273-010).



4) Put back the CD mechanism and remove the 2 screws of S-SCREW, MECH HLDR (81-ZG1-254-010).



5) Remove the screw VIT+2-3 (87-571-032-410) and LED PWB together with the holder HLDR PWB LED (88-ZG5-305-010).

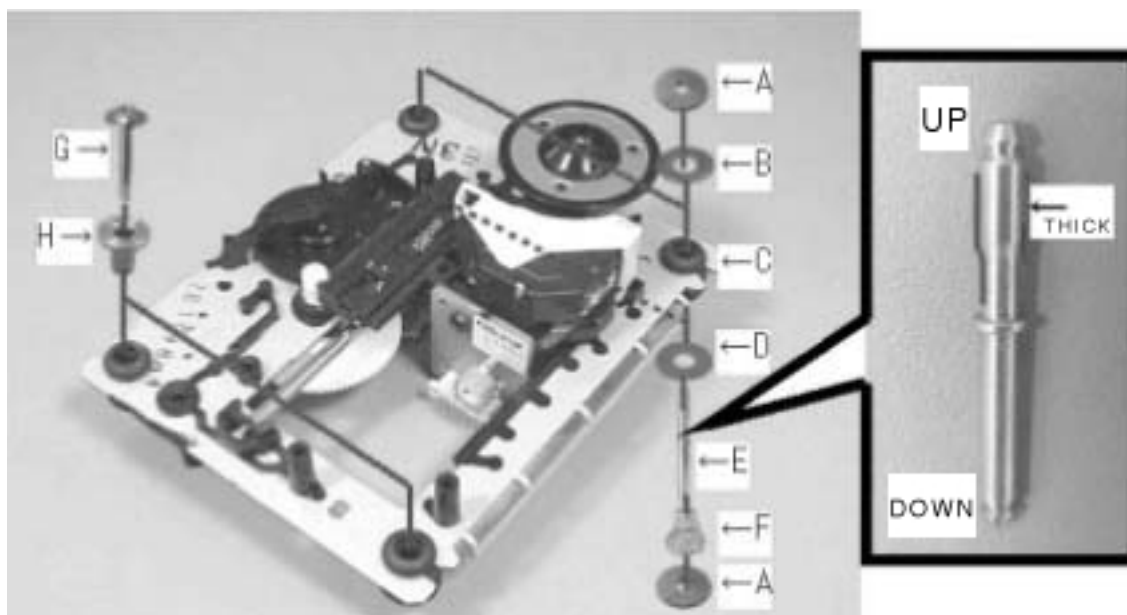


6) Remove the 3ZG-2 mechanism from the BASE.

* Make sure that not to lose a spring (SPR-C, MECHA (F)) during this operation.

7) Remove the pick-up.

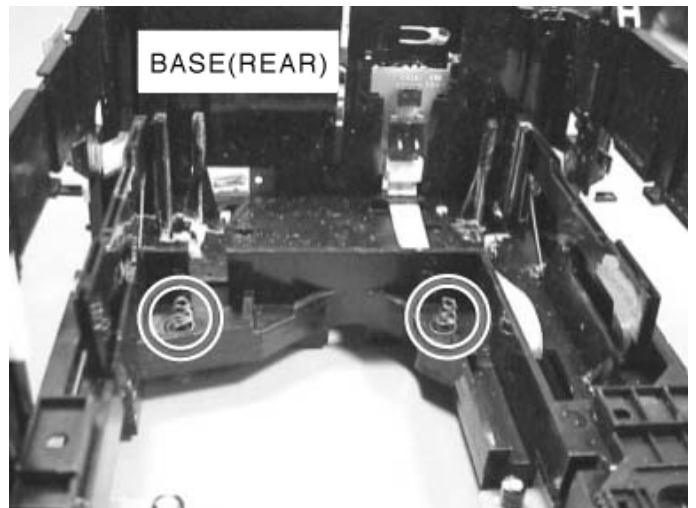
2-2. Peripheral parts of 3ZG-2



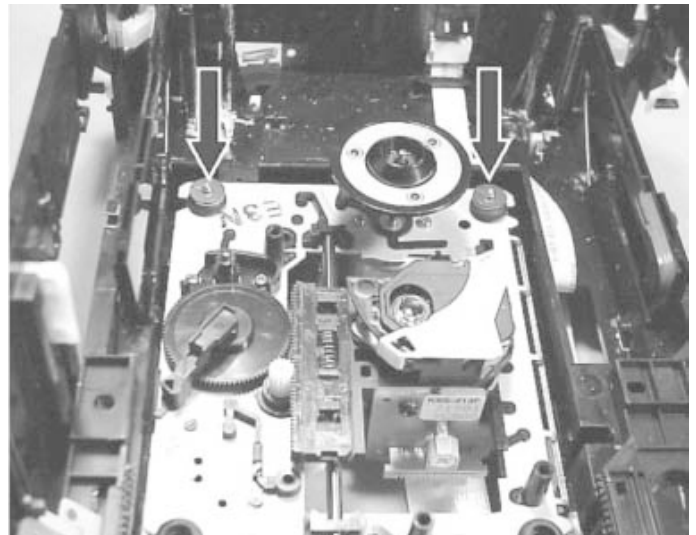
	Parts Name	Parts No.	Usage Number
A	W-P 2.08-8-0.5 SLIT	87-B10-273-010	4
B	W 3-8-0.5	88-ZG5-324-010	2
C	CUSH-G MAIN A	83-ZG3-225-010	4
D	W-L 3.15-8-0.5	88-ZG5-327-010	2
E	SHAFT MECHA	88-ZG5-309-010	2
F	SPR-C MECHA	88-ZG5-310-010	2
G	S-SCREW MECH HLDR	81-ZG1-254-010	2
H	CLR MECH	88-ZG5-320-010	2

2-3. Pick-up installation

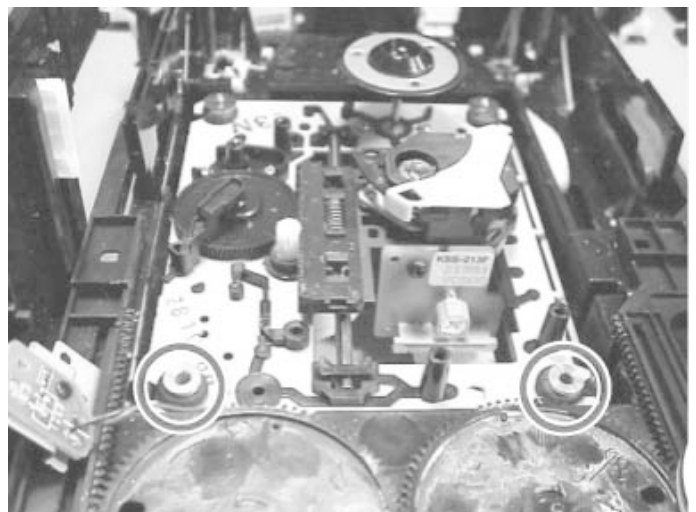
- 1) Install the pick-up to 3ZG-2.
- 2) Locate the 2 springs (SPR-C, MECH (F)) on the rear side of the BASE.



- 3) Pass the SHAFT, MECH (E) of 3ZG-2 through the above-mentioned springs and insert them into holes.



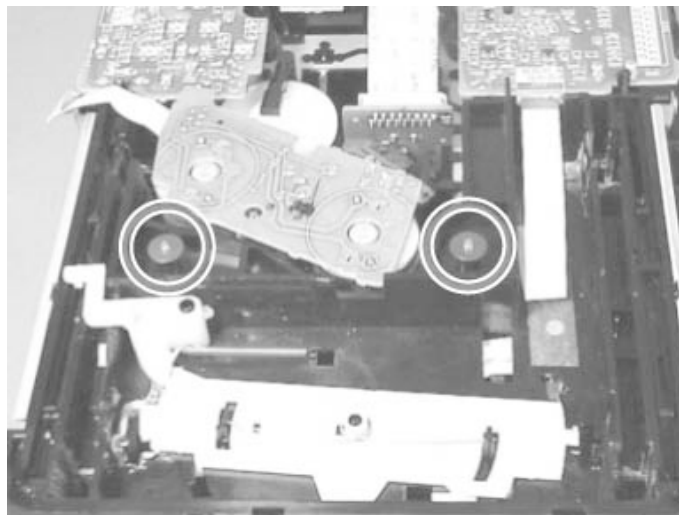
- 4) Insert the CLR, MECH (H) into the 2 CUSH-G, MAIN A (C) on the front side.



5) Install the 2 screws (G) into the CLR, MECHA(H).



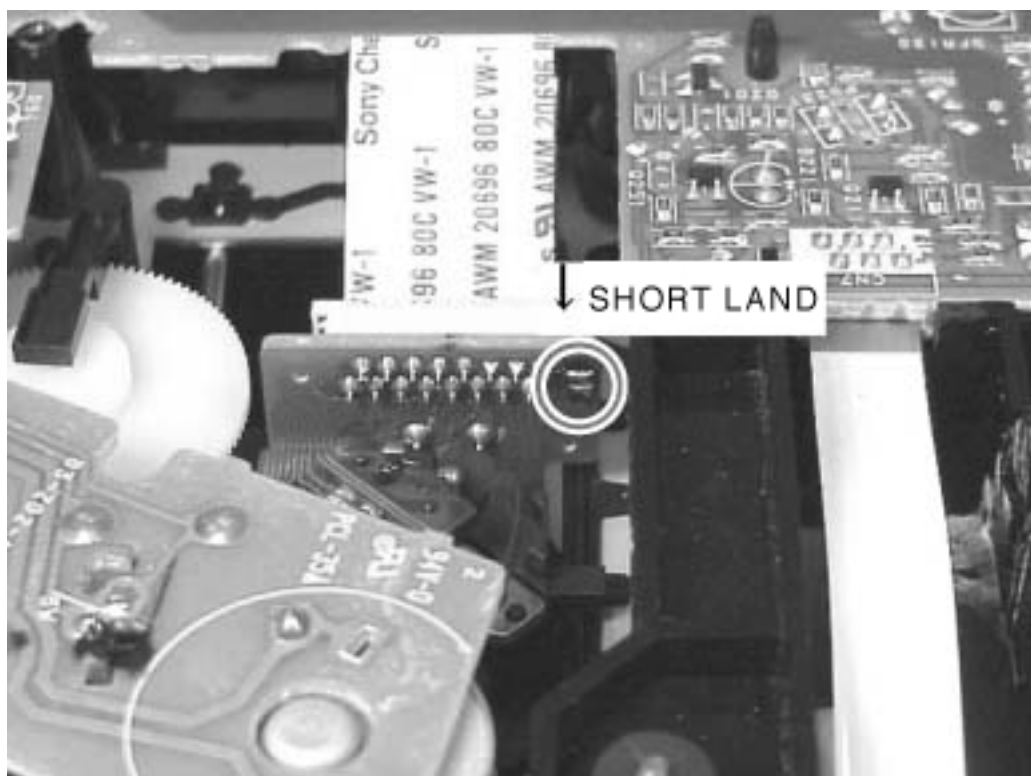
6) Turn over the CD mechanism and fix the SHAFT, MECH (E) with washer.



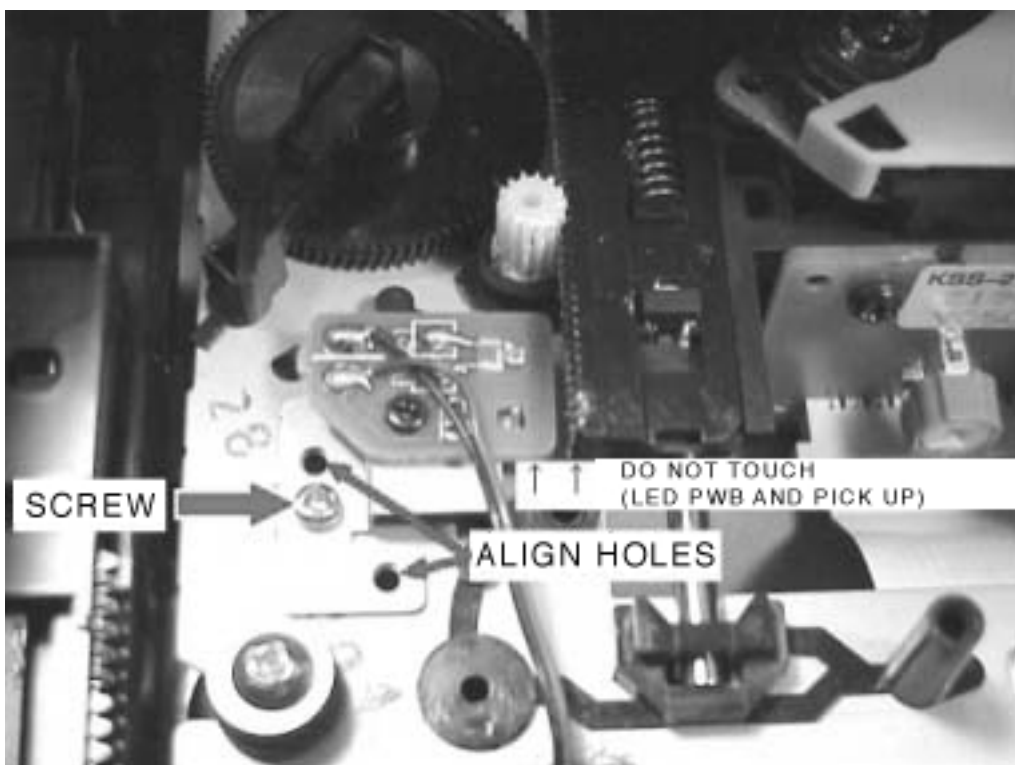
7) Connect the FFC, 16P and FFC, 6P to the connector.



8) Remove the shortland soldering of the pick-up.



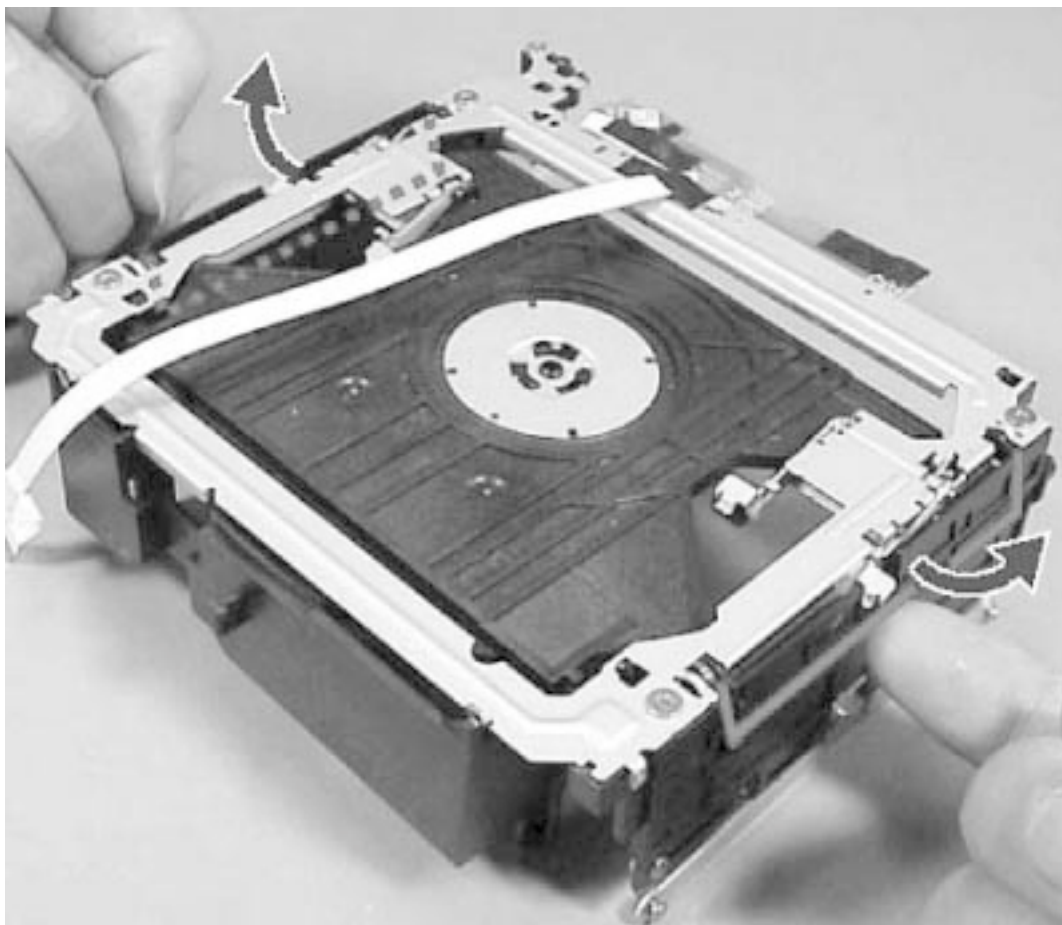
9) Put back the CD mechanism and fixate the holder (with the LED PWB mounted) by screwing it through the holes on the 3ZG-2.
* Make sure that not to touch the pick-up with the LED circuit board.



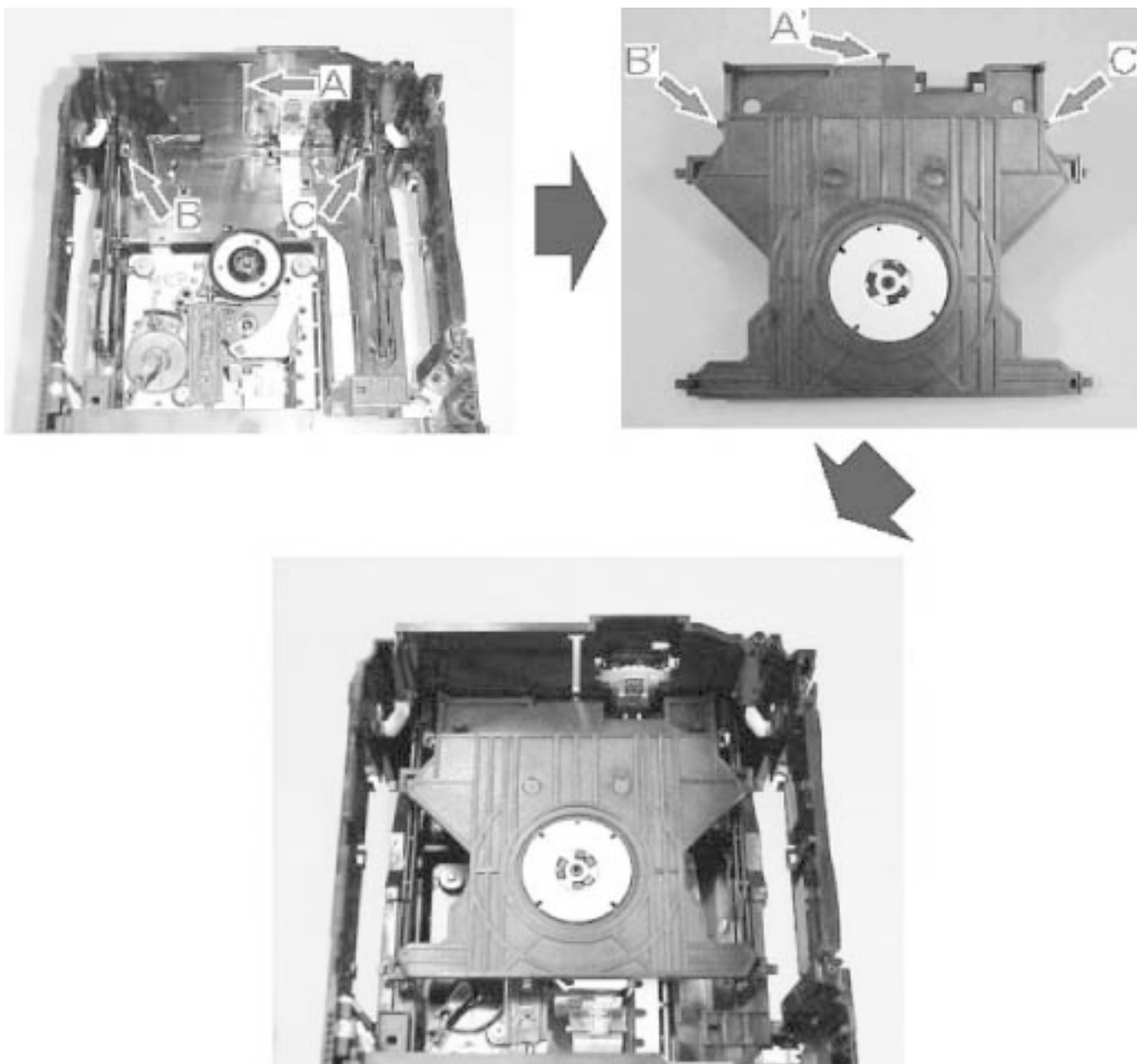
3. ZZG-4 Mechanism Assembly and Phase Adjustment

3-1. Assembly the ELEVATOR Part

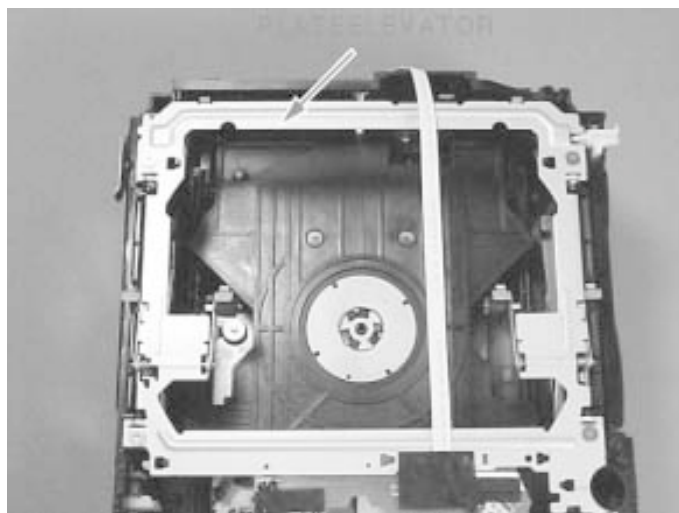
- 1) Lift up both the LEVER, CATCHER L (in red solid line) and R (in red dotted line) and remove the HLDR, CLAMP.



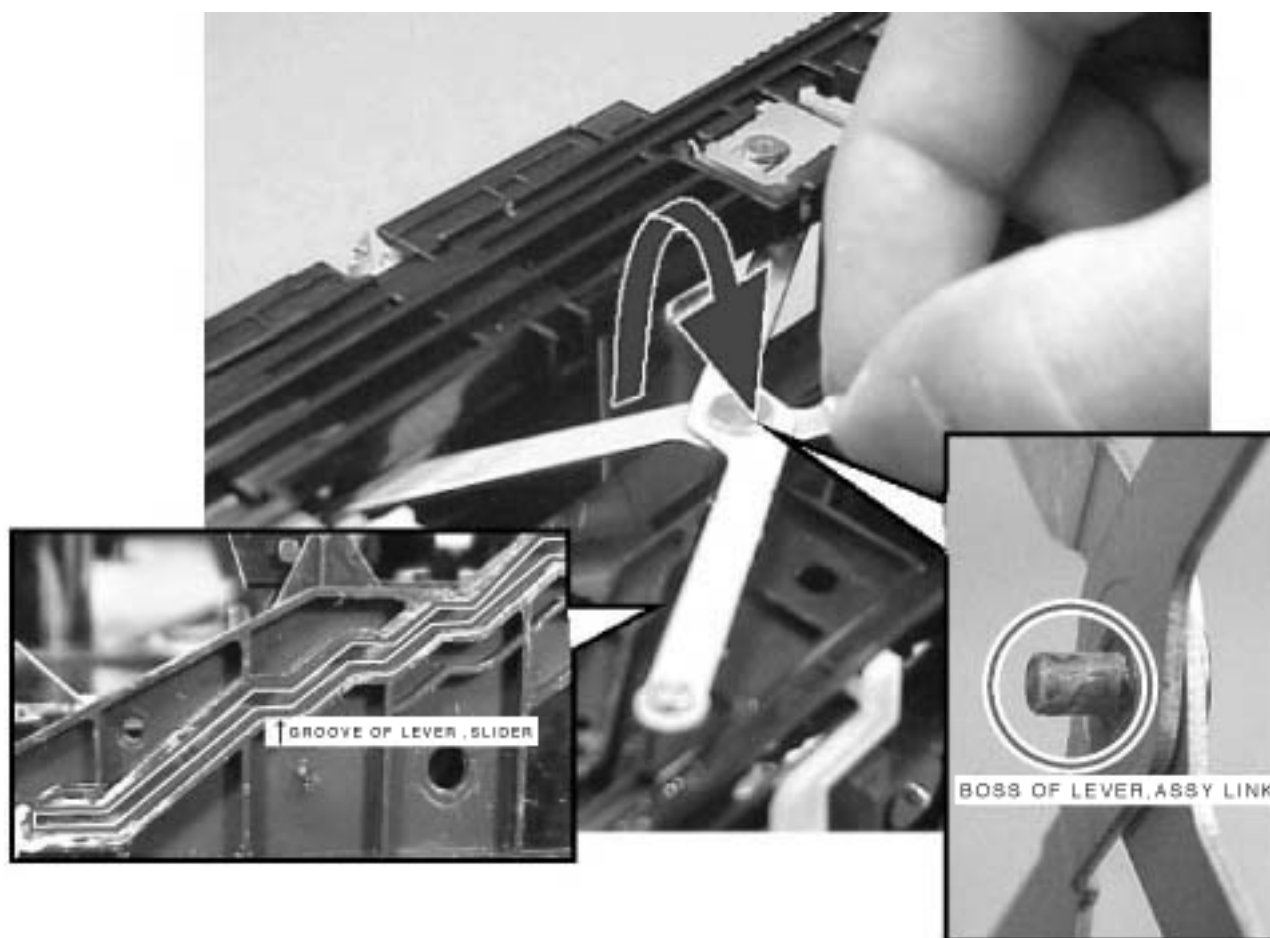
- 2) Fit the A', B', and C' of the HLDR CLAMP to the A, B, and C of the BASE respectively, and set the HLDR, CLAMP into the BASE.
Push the HLDR, CLAMP till it chucks with click.



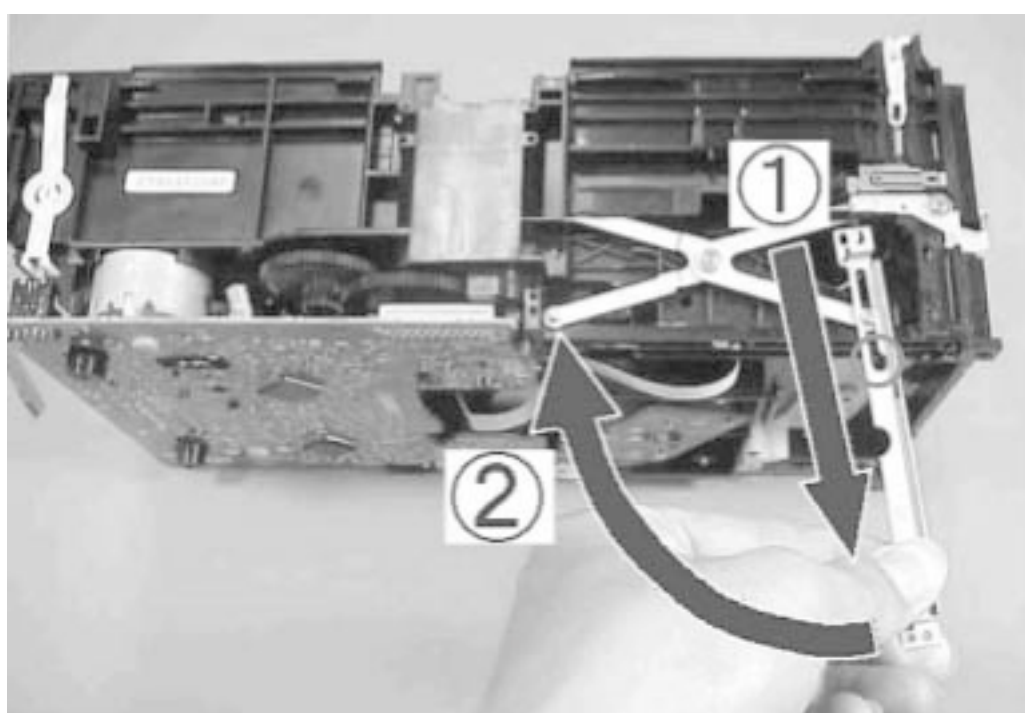
- 3) Place the PLATE, ELEVATOR on top of the BASE.



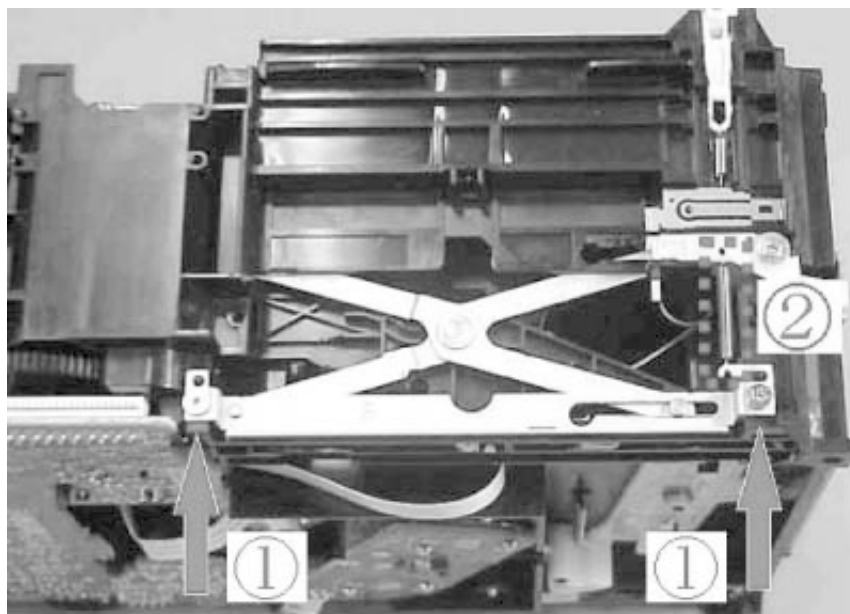
- 4) Set the boss of the LEVER, ASSY LINK into the groove of the LEVER, SLIDER (on the both sides of L and R).



- 5) ① Insert the boss of the LEVER, ASSY LINK R into the hole (O) of the HLDR, LINK R and pull it down.
② Then rotate it as shown in the photo, in order to set the boss into the hole on the front side of the HLDR, LINK R.

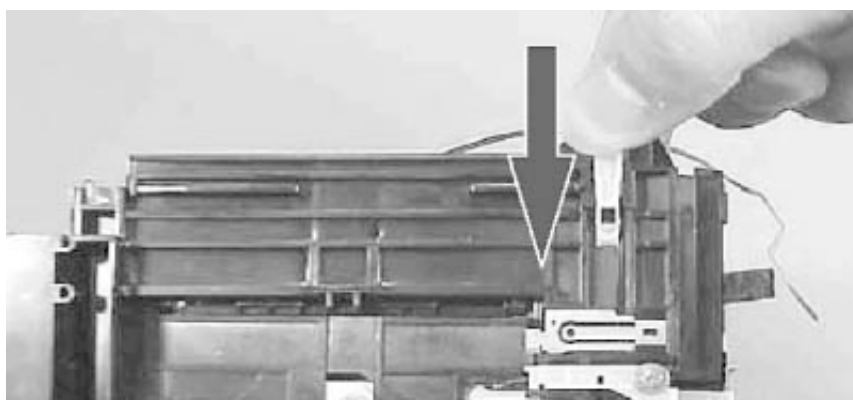


- 6) Fix the HLDR, LINK R with screws.
Then install the spring (88-ZG5-292-010).

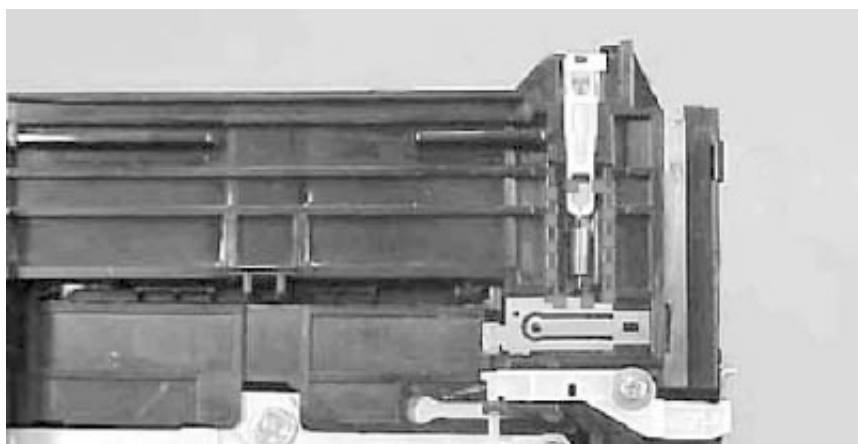


- 7) Fix the HLDR, LINK L in the same step as R, and then install the spring (88-ZG5-292-010).

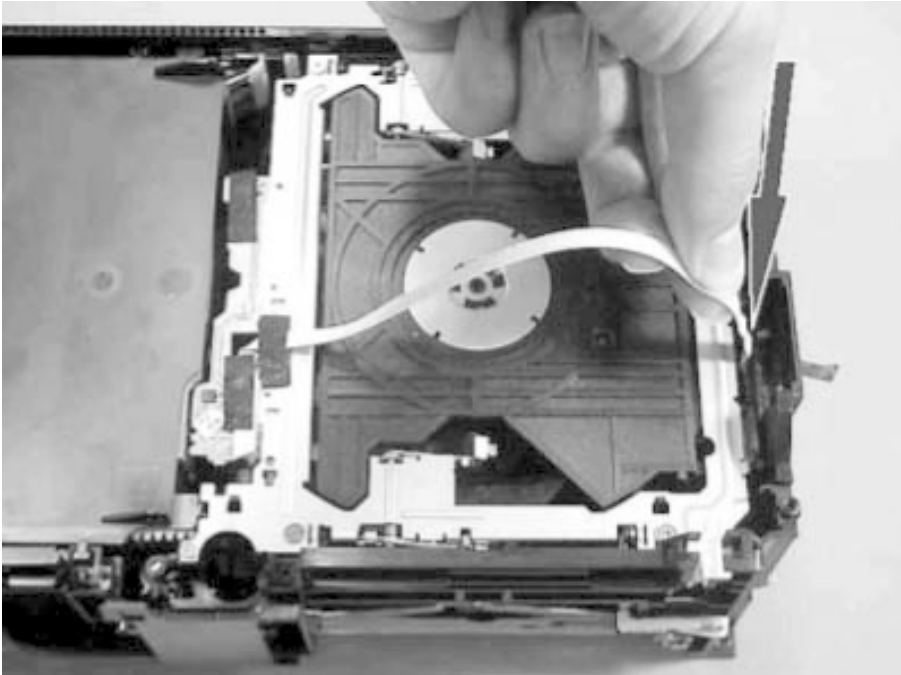
- 8) Insert the LEVER, LOCK F till the click sound comes out.



- 9) Install the spring (88-ZG5-225-010).



10) Pass the FFC, 4P through the rib of the BASE, and connect it to the connector of the switch circuit board.

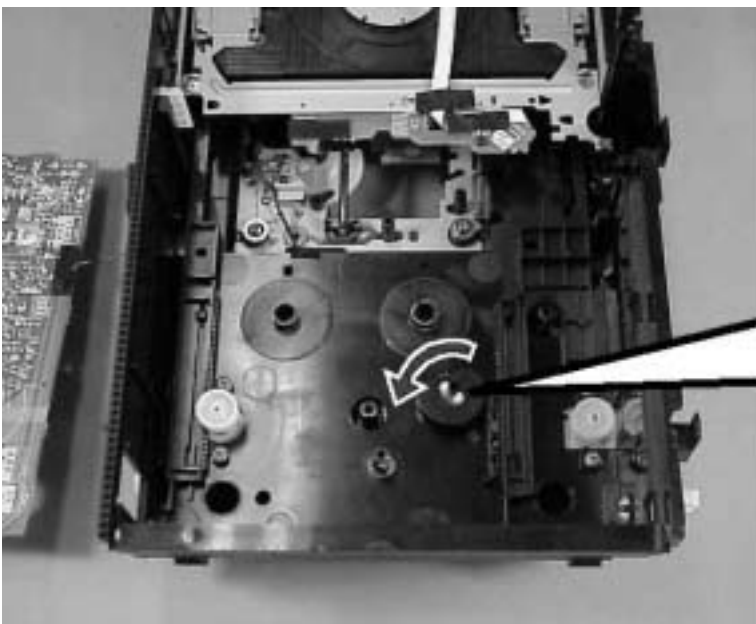


Refer to the “6-5. Marking of each GEAR” for the further details.

3-2. GEAR, PULLY for the ELEVATOR UP/DOWN Assembly and Phase Adjustment.

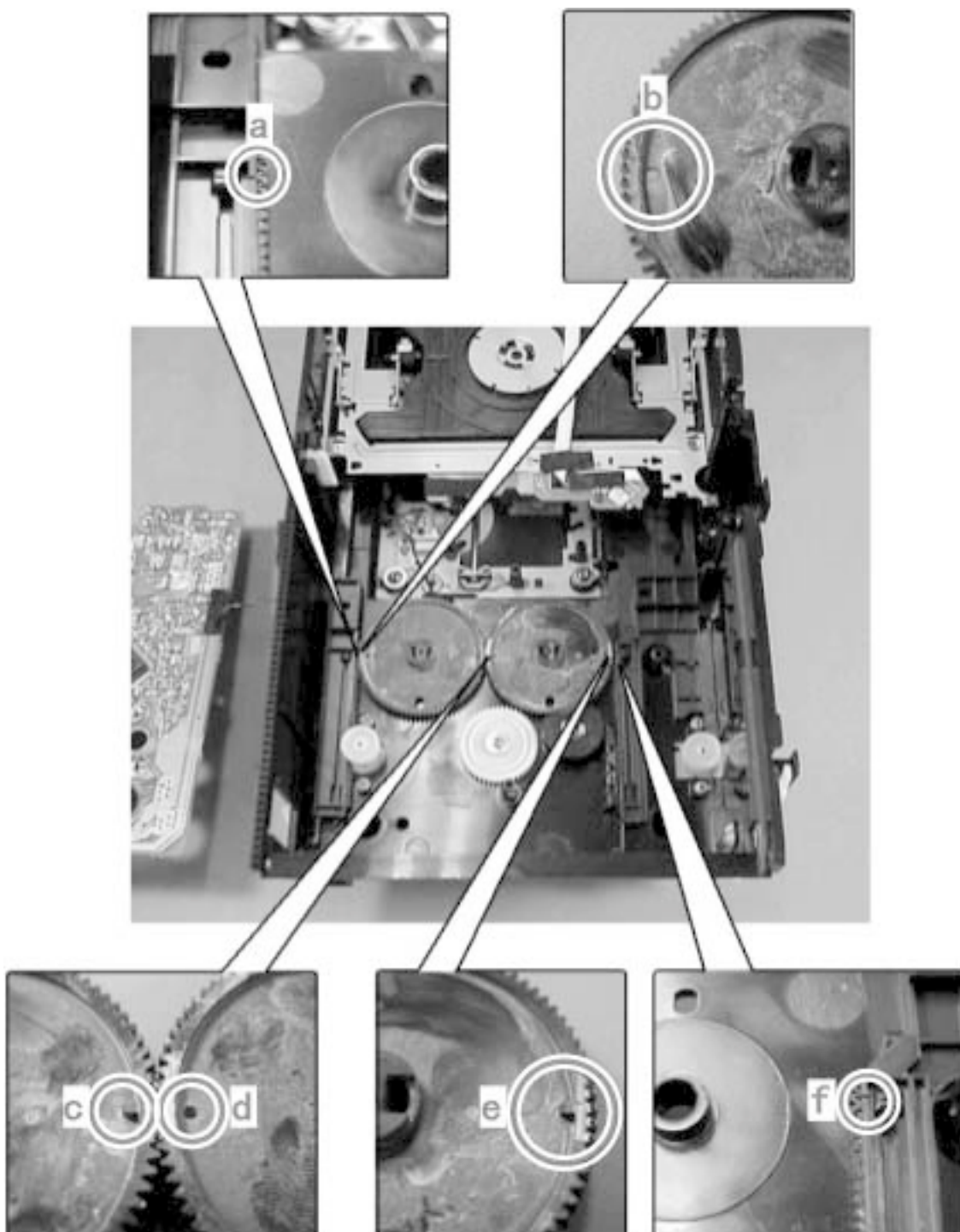
1) Rotate the GEAR, SLIDER B fully to the direction of the arrow.

Make sure that the claws of the GEAR, SLIDER B and the projection part is aligned straight.

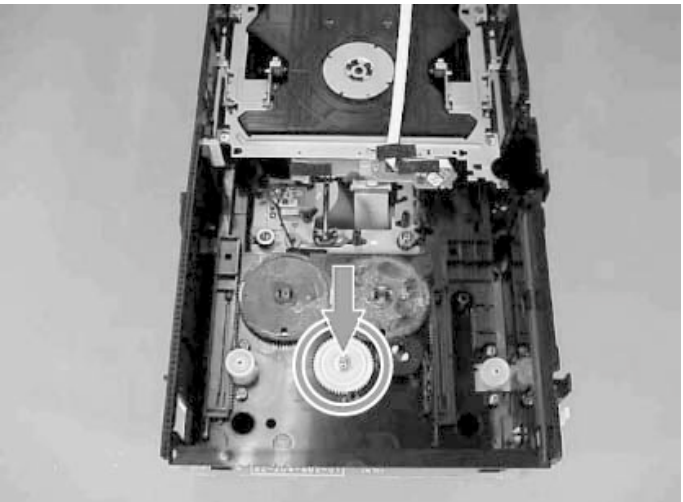


- 2) Set the 2 GEAR, SLIDER A to the BASE, so as to align the projection “a”, the circle hole “b”, the projection “c”, the circle hole “d”, the projection “e”, and the depression “f” in a straight line.

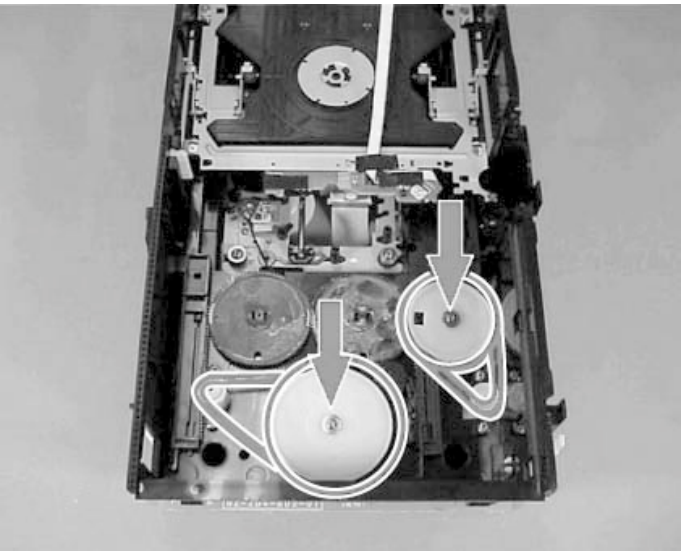
This method differs from the method in the factory. For that with the unit of the unrepair, GEAR SLIDER A is not the direction of a figure.



3) Install the GEAR, SLIDER C with a screw.

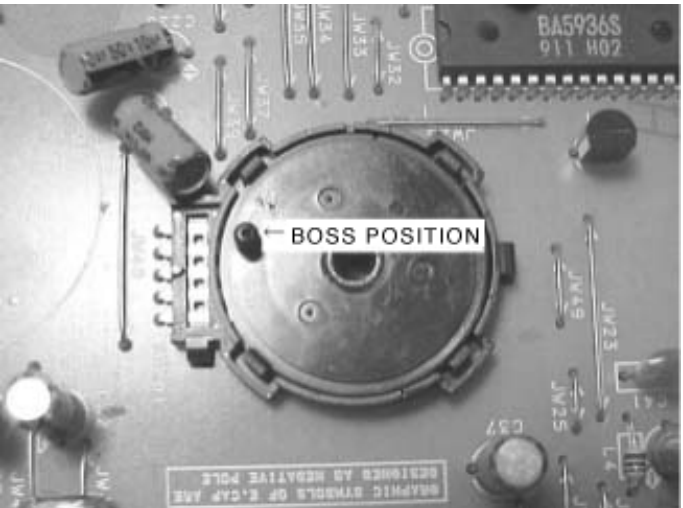


4) Install the PULLEY, SLIDER and PULLEY BASE with 2 screws. Then install the BELT, SLIDER and BELT, PULLEY, BASE.

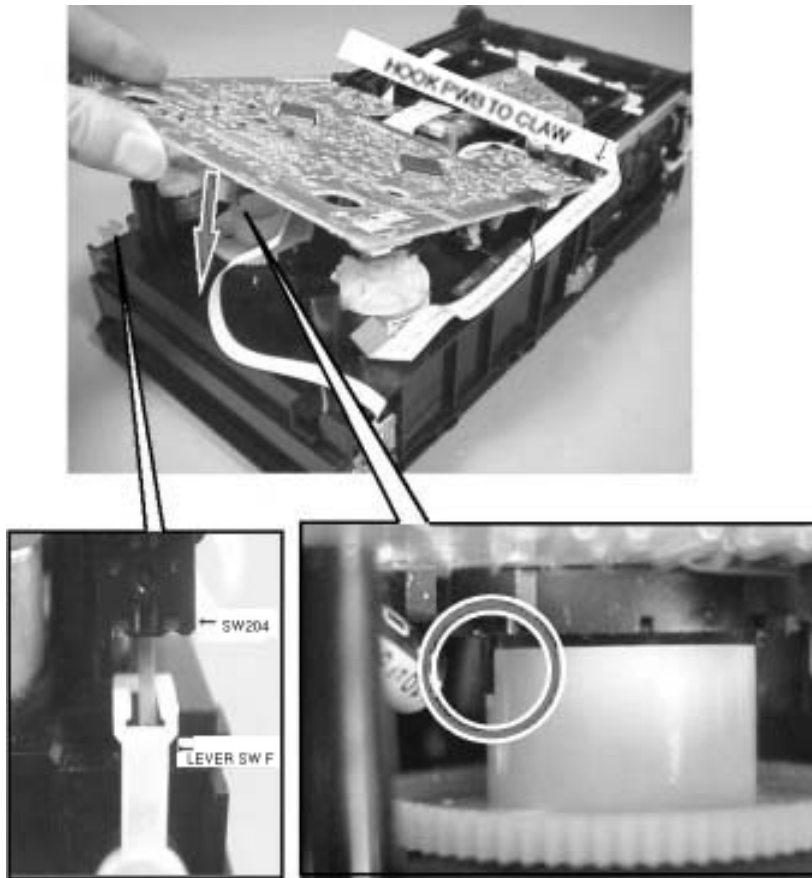


3-3. CD C.B Installation

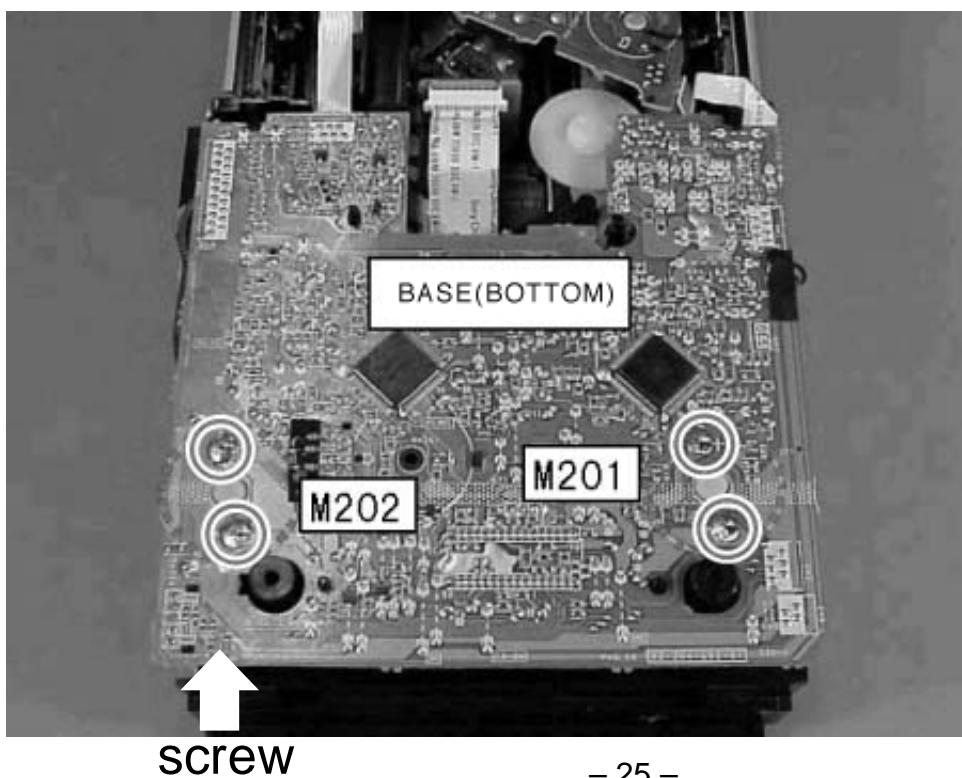
1) Rotate the mode SW (SW201) of the CD C.B to position the boss as shown in the photo.



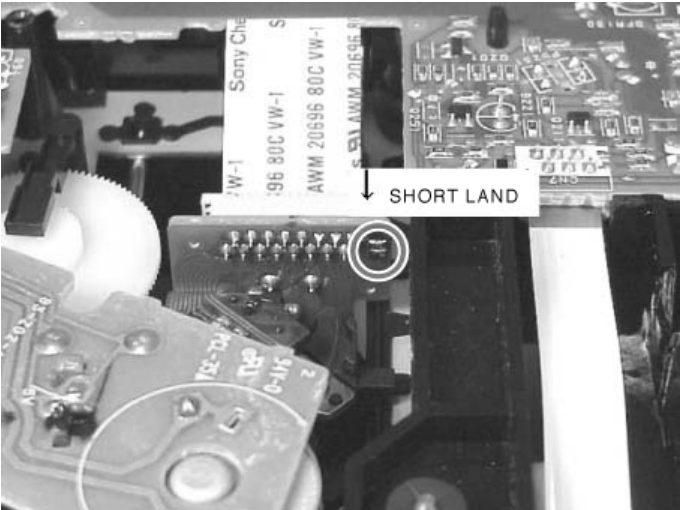
- 2) First, hook the rear side of the CD circuit board on the picks. Then position it on the front side. Make sure that the boss of the SW 201 and SW204 are fitted into the dent (O) of the GEAR, SLIDER B and the LEVER, SW F respectively. Then connect the 3 FFCs to the CD C.B.



- 3) Install the CD P.W.B. with screw. And solder the legs of the motors of M201 and M202.

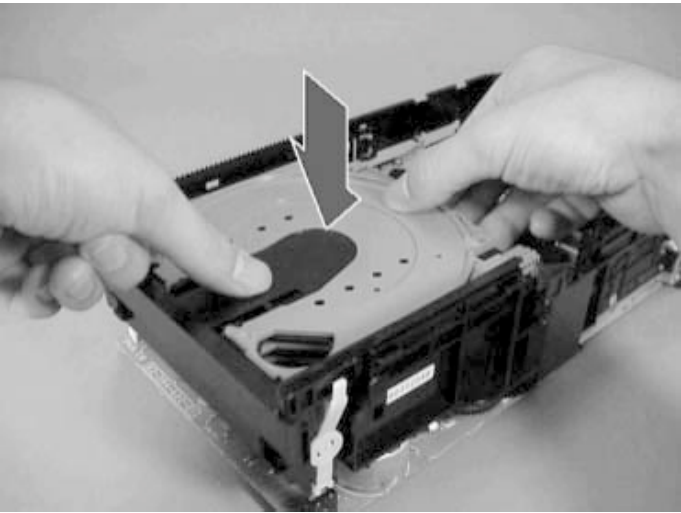


4) Remove the shortland soldering of the pickup.

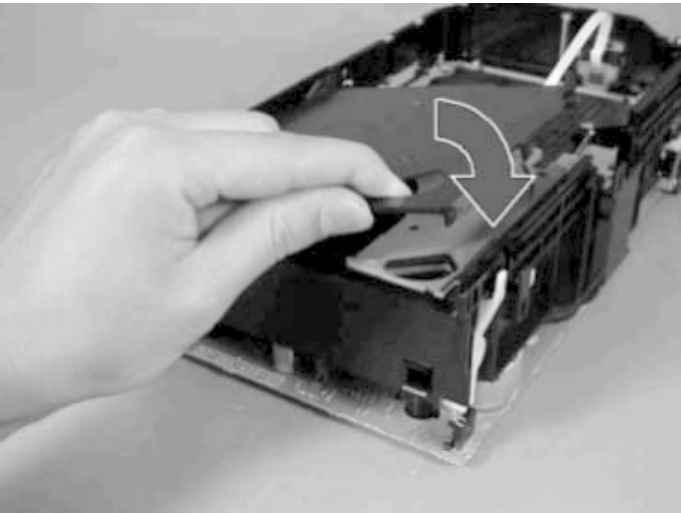


3-4. CG MAGAZINE Installation

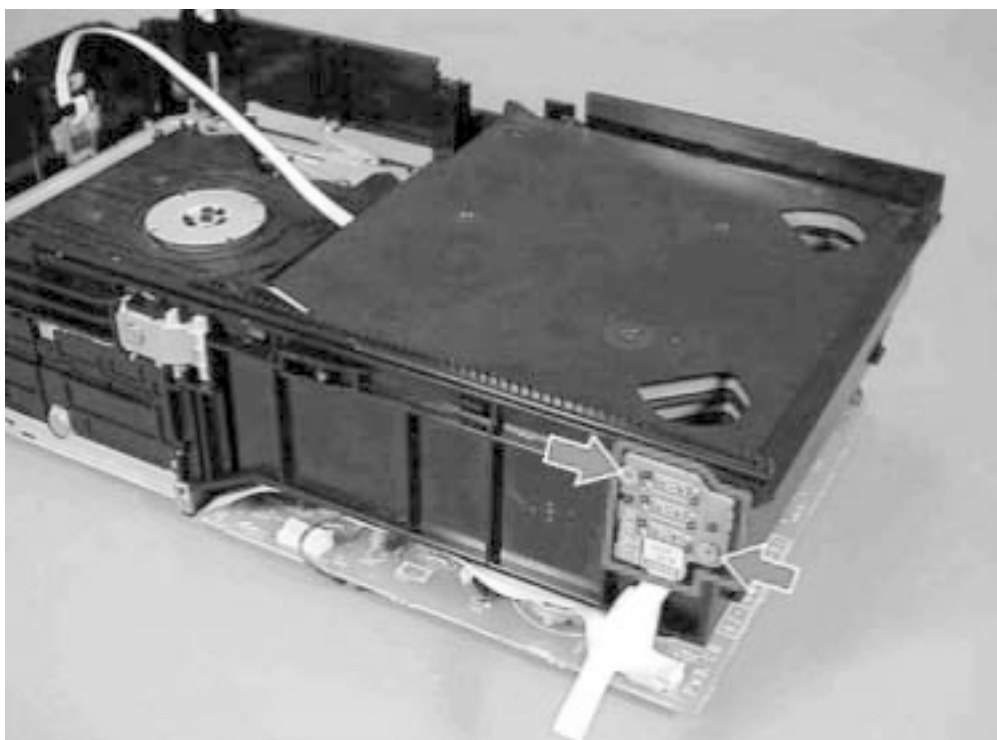
- 1) Insert the TRAY 1, 2, 3 and 3 pieces of MAGAZINE into the BASE.
 - * TRAY should be inserted in order of 3-2-1 from the top (All 3 MAGAZINE are the same).



- 2) Install the MAGAZINE, TOP as shown in the photo and press it down till the claws (Refer to 4-4-3) get hooked.



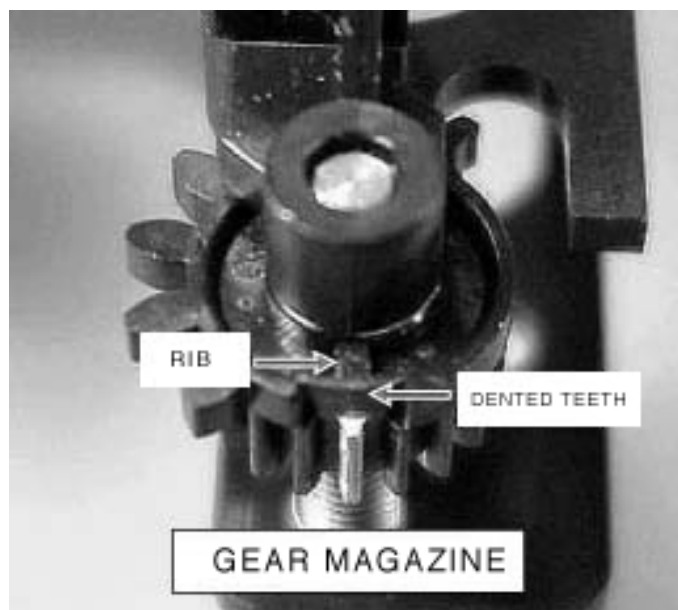
3) Install the PWB, TRAY with the 2 screws.



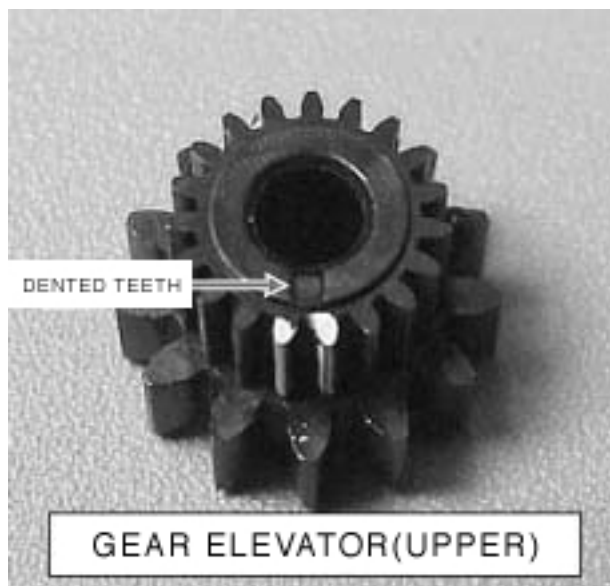
3-5. Marking of each GEAR

- * In case of replacing all the GEAR, MAGAZINE / GEAR, ELEVATOR, GEAR, TRAY AB with new GEAR, use a white marker for marking.

1) Mark the dented teeth with rib of the GEAR, MAGAZINE.



2) Mark the upper and bottom of the GEAR, ELEVATOR. As for the upper side, mark the tooth of the both side of a dent mark. As for the bottom side, on the other hand, mark the 2nd and 3rd from the right of 5 projected tooth.

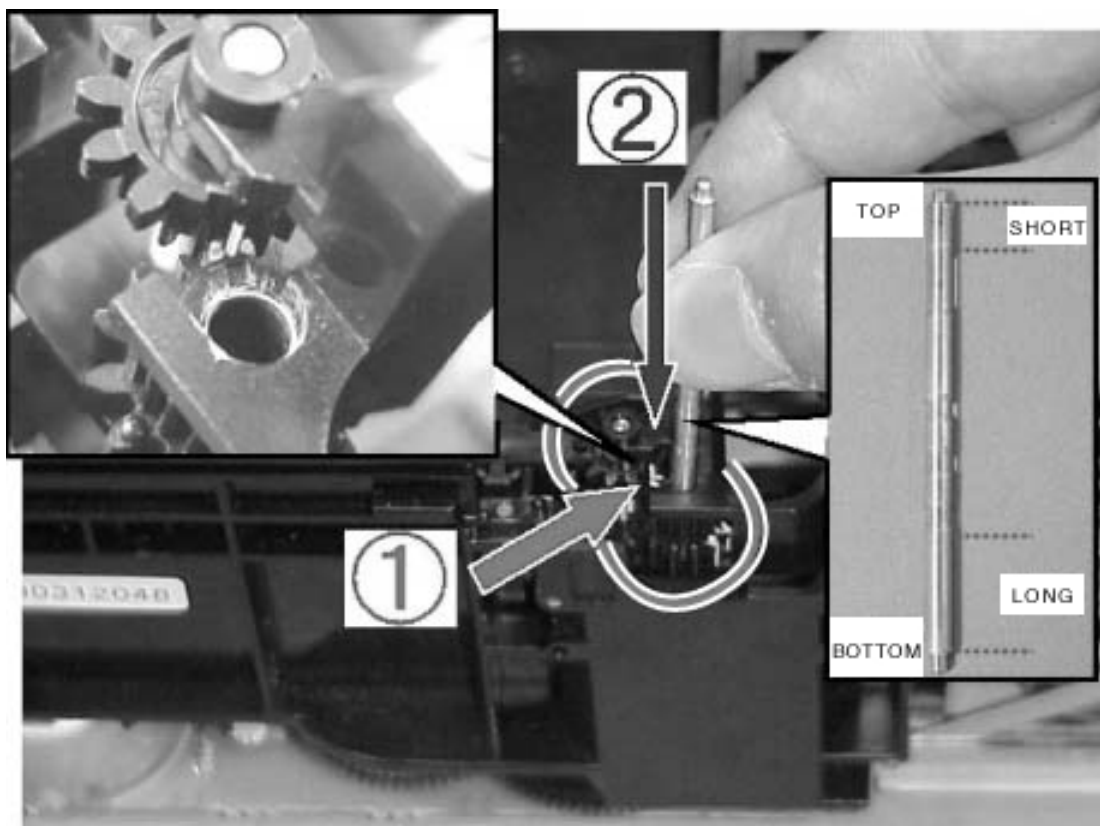


3) Mark the projected part of the GEAR TRAY AB.



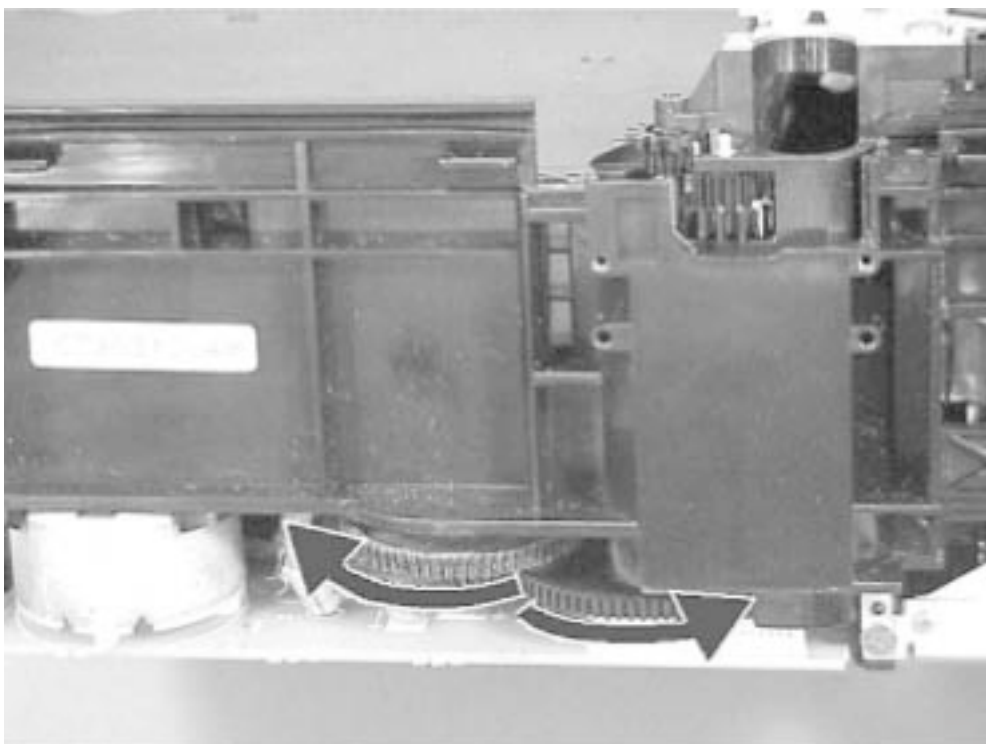
3-6. GEAR, ELEVATOR Phase Adjustment

- 1) Put the marked teeth of the ① GEAR MAGAZINE and the marked teeth (on the upper side) of the GEAR, ELEVATOR together, and put back the GEAR ELEVATOR itself to the original position. Then insert the ② SHAFT, ELEVATOR (make sure the up and down) and fix it.

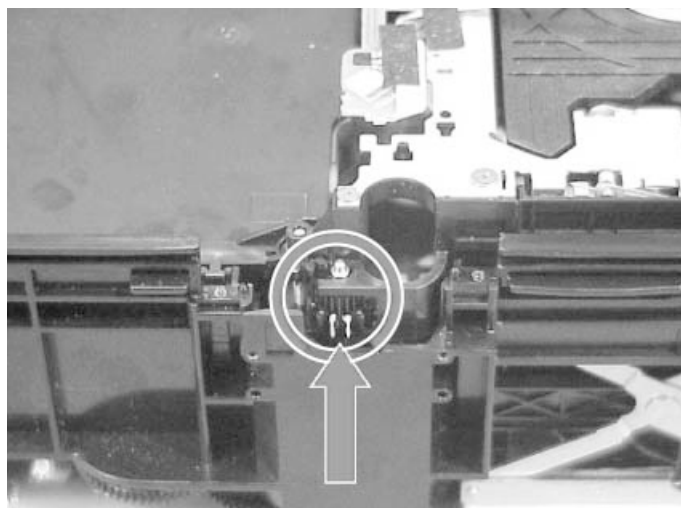


3-7. GEAR, TRAY AB Phase Adjustment

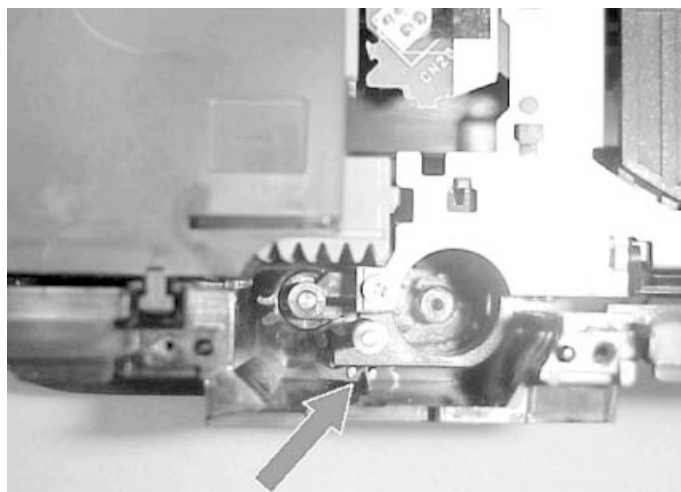
- 1) Rotate the GEAR, BASE fully to the direction of the arrow.



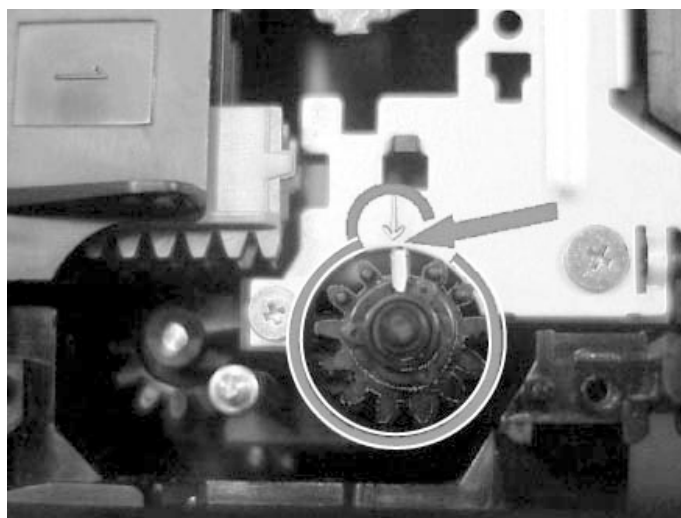
- 2) Rotate the GEAR, ELEVATOR and position the marked teeth (on the bottom side) at the point indicated by an arrow (Notes: it is different from the marking in 6-6.).



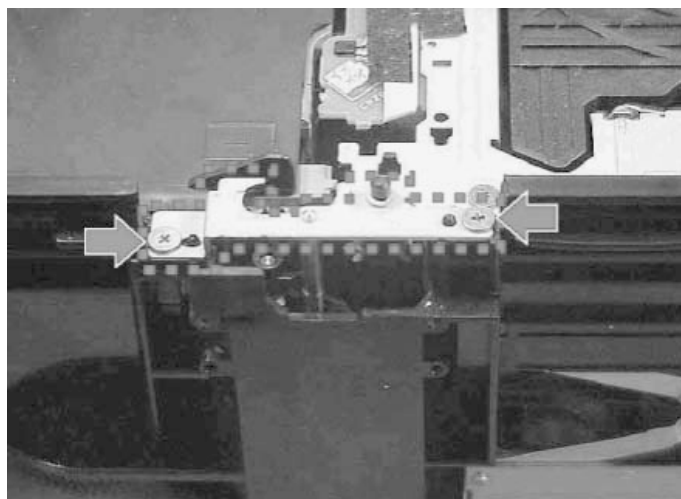
- 3) Rotate the GEAR, SLIDER B and lower the ELEVATOR to the UNLOCK position (the lowest position). (At this time, the teeth of the GEAR, ELEVATOR should be biting the base stopper.)



- 4) Insert the GEAR, TRAY AB into the position, so that the marking of the GEAR, TRAY AB will align with the arrow mark on the PLATE, ELEVATOR at the UNLOCK position.



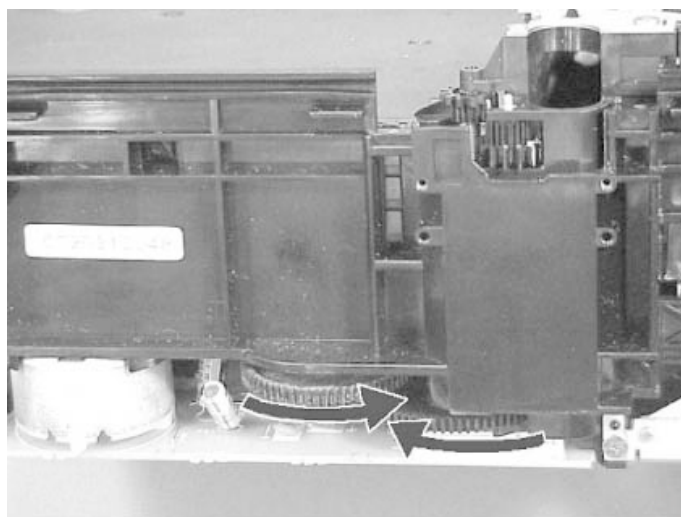
5) Install the HLDR, SHAFT with screws.



6) Rotate the GEAR, SLIDER B to position the ELEVATOR at the TOP position.

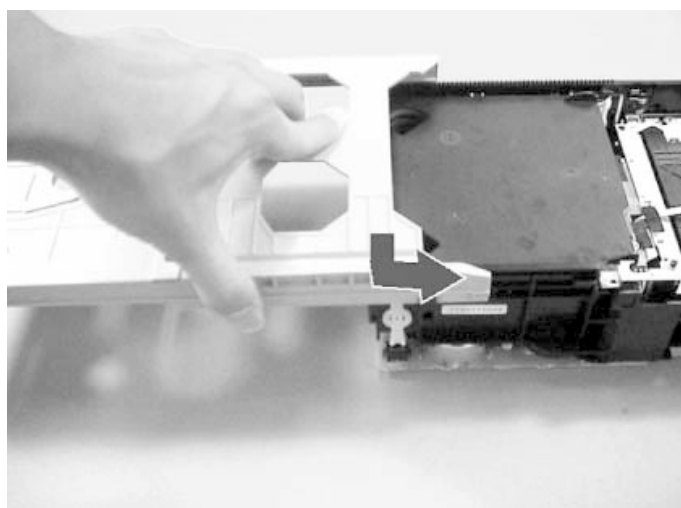
3-8. FRAME, MAIN Installation

1) At this point, three marked GEAR should be positioned at the GEAR position with the TRAY on top of the ELEVATOR. Rotate the GEAR, BASE fully to the direction of the arrow.

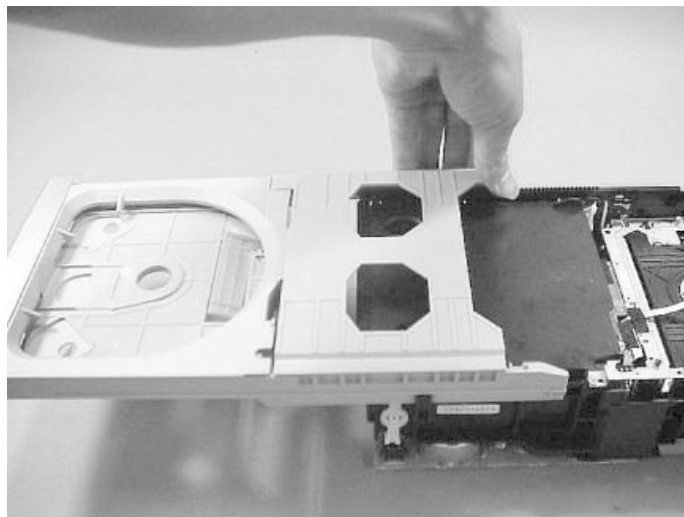


2) Lower down the ELEVATOR to the bottom again.

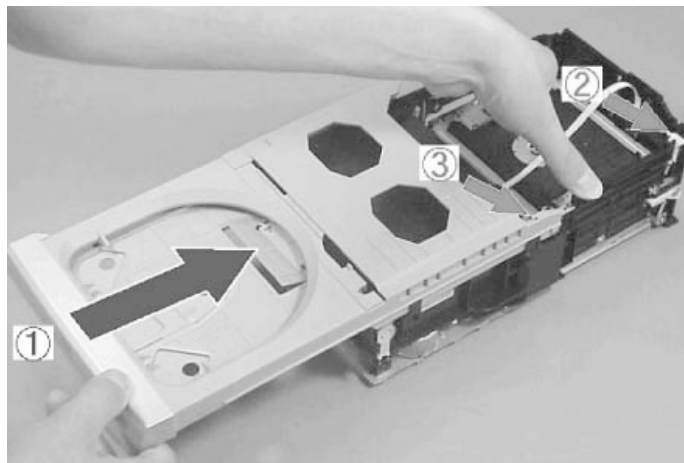
3) Set the right-hand side of the FRAME, MAIN onto the rail.



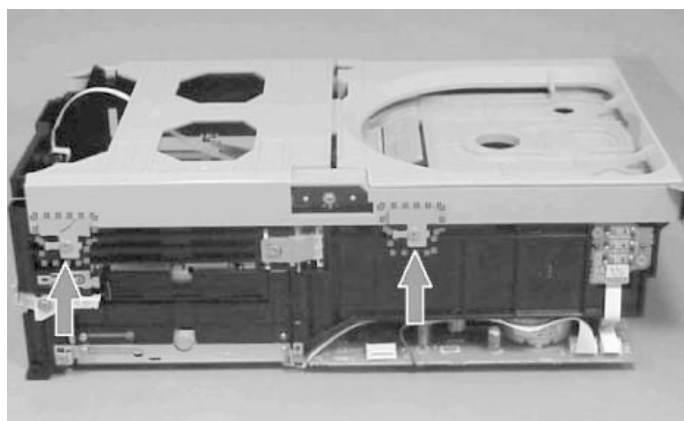
- 4) Set the left-hand side of the FRAME, MAIN onto the rail.



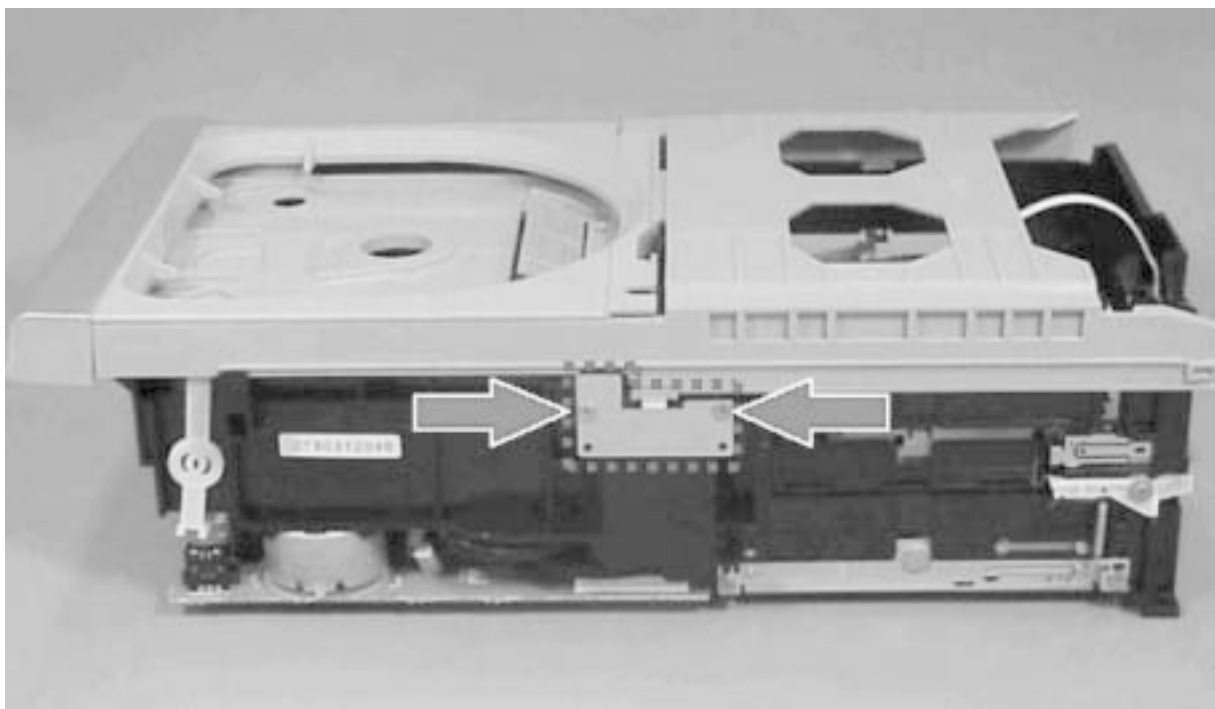
- 5) Insert the ① FRAME, MAIN all the way to the end.
Press the ③ FRAME, MAIN until the ② LEVER,
LOCK F get set into the groove of the FRAME MAIN.



- 6) Install the PLATE, FRAME L with screws.



7) Install the PLATE, FRAME R with screws.



CD TEST MODE

1. How to activate
 - 1) Insert AC plug into an outlet while pressing the CD function button. (Fig.1 ①)
 - 2) Display will be all lit as shown in Fig2 in CD test mode (All FL display on).
 - 3) Press the CD function button again to switch into mecha test mode as shown in Fig.3.
 - 4) Press the CD function button in order to switch between CD and mecha test modes.



Fig.1. Front View



Fig.2. Display in CD Test Mode



Fig.3. Display in Mecha Test Mode

2. Mecha Test Mode












- 1) By pressing the following buttons, up and down operation of the elevator, and the OPEN/CLOSE operation of the frame (tray), can be controlled and operated regardless of the positions of mecha and switches.

Operation	Control Button	Display
Elevator Up	▶▶ (Fig.1 ②)	ELV.UP
Elevator Down	◀◀ (Fig.1 ③)	ELV.OPEN
Frame Open (Tray)	CD1 OPEN/CLOSE button (Fig.1 ④)	FRAME OPEN (TRAY OPEN)
Frame Close (Tray)	CD2 OPEN/CLOSE button (Fig.1 ⑤)	FRAME CLOSE (TRAY CLOSE)

Note 1: It displays FRAME OPEN/CLOSE while the elevator is in the top position. It displays TRAY OPEN/CLOSE if the elevator is in any other positions.

Note 2: Mecha test mode may be operated regardless of the positions of mecha and switches. Once operated in the Mecha test mode, make sure that go into the transfer mode (no disc, all trays are within MAGAZINE, and ELV in the lowest position), in which the mecha should be in a stable position, before quitting the test mode.

2) Each mecha switch and ON/OFF position of sensors may be checked on display.

SW and Sensor	Ref. No	Position of SW and Sensor	Display
Frame OPEN / CLOSE SW	SW204	Frame is in OPEN position. Frame is in MIDDLE position. Frame is in CLOSE position.	ROCK POP  is lit ROCK  JAZZ is lit  POP JAZZ is lit
TRAY No. Detection SW	SW202	Tray 1 is in PLAY position. Tray 2 is in PLAY position. Tray 3 is in PLAY position.	 T-BASS is lit.  T-BASS is lit.  T-BASS is lit.
Elevator Position Detection SW	SW201	Elevator is in TOP position. Elevator is in CD3 position. Elevator is in CD2 position. Elevator is in CD1 position. Elevator is in PLAY position. Elevator is in UNLOCK position. Elevator is in other positions.	“3” is lit. “7” is lit. “5” is lit. “6” is lit. “4” is lit. “1” is lit. “8” is lit.
Faulty Disc Prevention Sensor	Q202 Q212	Frame (tray) is covering Q202. Frame (tray) is covering Q201.	“MONO” is turned off. “SLEEP” is turned off.
Tray Edge Detection Sensor	PS231	Frame (tray) is in OPEN/CLOSE position. Frame (tray) is in MIDDLE position.	is lit. is turned off.
Tray No. Detection SW	SW213 SW212 SW211	Tray 1 is in CD MAGAZINE. Tray 2 is in CD MAGAZINE. Tray 3 is in CD MAGAZINE.	 BBE is lit.  BBE is lit.  BBE is lit.

3. CD Test Mode

- 1) CD test mode retains the functions as usual. After the activation, press each control button in order to turn on the following mode functions.

MODE	Control	Display	Operation	Details
Start Mode	Test Mode Activated	All lit	–	–
Search Mode	■	“CD”	Continual Focus Search Object Lenses will repeat a full swing.	<ul style="list-style-type: none"> • Check APC circuit • Measure laser current • Check the focus error wave
Play Mode	◀▶	Display Track No. and Play-time with spinning eye-catch.	Ignore all errors detected. * When any error were detected, continue re-trying.	<ul style="list-style-type: none"> • Turn ON Focus Servo, Tracking Servo, CLV Servo, Sledding Servo. • Check DRF
Traverse Mode		Display Track No. and Play-time with flashing eye-catch.	Pause	<ul style="list-style-type: none"> • Turn OFF Tracking Servo • Check Tracking Balance (Traverse)
Sledding Mode	▶▶ ◀◀	“CD TEST”	<ul style="list-style-type: none"> • Shift to the internal circumference of the pickup. • Shift to the external circumference of the pickup. 	<ul style="list-style-type: none"> • Check Sledding Motor Driver Circuit and Sledding Mecha Operation

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